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**University  
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Education

**Environmentally Conscious Global Citizens:  
An Evolution from  
Environmental Education to Education for  
Sustainable Development  
in Pakistan**

by

**Asma Khanum**

**M.Sc (Geography) B.Ed. M.Phil**

**A Thesis Submitted in Fulfilment of the Requirements for the Degree of  
Doctor of Philosophy (PhD)  
School of Education, University of Glasgow, Scotland UK.**

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## **Abstract**

At the age when the environmental issues are forefront in the government policies in Pakistan, this research study documents to identify how sustainable development education is integrating into primary school education and in initial teacher education in Pakistan. Education for sustainable development, a UN initiative is an emerging field and a movement supporting the reorientation of education trying to engage young people with the life style compatible with environment protection and social and economic development in a sustainable way (UNESCO, 2005).

The broad objective of the study was achieved by adopting a methodology based on interpretative/phenomenology paradigm which leads towards a direction that educational phenomenon can be understood through different viewpoints. Therefore this study has been divided in to four parts. In the first part Pakistani educational system was examined and the curriculum was analysed for primary school education and ITE (B.Ed Honours) to have an idea of how and what context the concept of sustainable development is used. The empirical part of the study consists of a questionnaire survey directed to primary schools teachers and student teacher and comprised of interviews directed to the head teachers of primary schools in Pakistan. It highlights the nature of support provided to teachers, the constraints that hinder the adoption of ESD as a regular teaching tool and their own ideas, suggestions and plans to promote ESD in their teaching and learning activities.

These results are not in line with the claims of UN that the focus in education *about* sustainable development has moved towards education *for* sustainable development. This means more focus on changing pedagogy and learning vision, instead of focusing merely on content. As a result of the study a range of recommendations have been identified through literature and field survey which mainly focused on the reforms in the policymaking, planning, implementation strategy for the inclusion of ESD, well-resourced institutions, teachers' capacity building for establishing coherent interdisciplinary approach based on student centred interactive strategies and reforms in assessment system accordingly. The information and insights gained would help in evolving a progressive, creative, dynamic, effective and practical strategy with regards to ESD in Pakistan, in line with the global requirements.

## **DEDICATION**

**To my beloved parents, husband and son for providing with me priceless support and encouragement for accomplishing this task.**

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### **Declaration**

I declare that, except where explicit reference is made to the contribution of others this thesis is the result of my own work. This work has not submitted for any other degree or any other institution.

Signature\_\_\_\_\_

## **CHAPTER ONE**

### **Background and purpose of study**

#### **1.1 Introduction and rationale of the study**

Education for Sustainability is an approach to teaching and learning that encapsulates the interdependence of ecological, social and economic systems. The goal of education for sustainability is for individuals to find the ways to meet the needs of people alive today while at the same time ensuring that future generations can meet their needs. In recent history human involvement with the Earth has had a significant impact on the Earth's resources in a manner that has impacted the sustainability of the planet (Palmer, 1999). Consequently the concept of environmental education is thought to be the part of education at all levels. In the present age where the humans are becoming global citizens and it has been realized that any good or bad impact on environment by humans in one part of the world can affects the environment of other regions. In present era the term 'global' has become a widely used phenomenon by international and non-governmental organizations such as United Nations Organisations (UNO) and United Nations Educational, Scientific and Cultural Organisations (UNESCO) headed to secure public support for and understanding of development and global issues. The result has been the emergence of terms such as 'global citizenship', 'global learning', 'global dimensions' within education and coming together of the international/global and development education traditions (Bourn, 2016). The term 'global' presents its fundamental challenges of rapid changes in society, culture and economies, increasing interdependence and the ways of interacting with environment. Education can play its role in tackling these challenges by preparing present and future generations and expanding the phenomenon of Education for a Sustainable future as a global movement. The aim of education for sustainable development is addressing environmental, economic and social challenges to build a better future shaped and shared by all (Palmer et al, 2003).

The concept of sustainable development by carrying the idea of environmental conservation received international attention after Brundtland Commission report in 1987. This report emerged as a mile stone in the history of evolution of ESD by providing a platform for development. According to UNESCO documents, sustainable development is the "ultimate goal of the Man-environment relationship"; thus the whole educational process should be reshaped for sustainable development. The fundamental elements of sustainable development education can be seen in the principles of environmental education as set forth in the Tiblissi



Declaration (UNESCO-UNEP, 1978, pp. 26-27). To support the same idea Scoullos (1995, p 23), a pioneer of EE notes that the idea of the environmental protection was never cut off from the idea or the need for a particular type of development. It was also believed that EE was focusing too narrowly on the protection of natural environments with an emphasis on ecological, economic or aesthetic values without taking into accounts the needs and rights of human populations associated with these same environments, as an integral part of the ecosystem. Likewise, it was also necessary to update the EE discourse by emphasizing aspects related to economic, political and social realities by focusing on planetary solidarity. Consequently interests in a “new concept of *environmental education for sustainable development* emerged. It is important to note that ESD is an evolving concept that has grown and developed since the Earth Summit in Rio de Janeiro in 1992 through a series of major UN conferences meetings. During the last twelve years the phenomenon of ESD have initiated an interest among the theorists and researchers with varying cultural, social and political background.

International agencies such as United Nations declared the period from 2005 to 2014 a Decade of Education for Sustainable Development (DESD). One of the key aims of the DESD was to reorient education towards education for sustainability but these aims do not appear to be fully achieved in different parts of the world. At this stage of development a realization is growing that ESD is a Western agenda and based on the interests of the developed world (Kopnina, 2012). Nonetheless, the approach of introducing and implementing is expanding worldwide in different political and geographical locations. Reflecting upon these differences researchers from different parts of the world considered ESD in specific socio-cultural settings. In a varying situation of political, social and economic context ESD has taken different forms in different time and space zones which have raised the interests of researchers at individual level at large-scale research projects. So the present research study was initiated to explore the current situation of ESD in the context of Pakistan to identify the differences and similarities with other parts of the world. Beyond this epistemological background, the personal interests of the researcher also contributed to identification of this research study. Being a student and a teacher of geography the notion of man-environment relation always grabs my attention. During my Master’s degree programme in Geography I came across the debate of *environmental determinism* verses *environmental possibilism* initiated by two well-known geographers Ritter and Humblodt in 1800s. According to an environmental deterministic point of view environmental conditions determine the culture and economy of any region while the idea of environmental

possibilism argues that human beings can overcome the ecological conditions to some extent. This debate further created the interest in emergent issues caused by man-environmental relationship.

In my professional career I worked as a teacher educator and developed a text book of Social Studies for class III for private school systems in Pakistan. After three years serving there, I joined a university for teacher education where I got a chance to teach the subjects of Teaching of Geography and Environmental Education to students of B.Ed. these experiences led me to explore the content related to ESD in primary grades curriculum and in ITE especially B.Ed Honours curriculum and further to explore the perceptions and practices of student teachers, school teachers. Moreover, I have started my professional career almost with the commencement of decade (2005-2014) for education for sustainable development and throughout my professional career the term environmental education remained a focus in my professional career and never came across with the term education for sustainable development. In 2011, after the six years of the start of DESD the concept of ESD was introduced to me through a research article which led me to follow the path of development of ESD in education system in Pakistan.

The teachers and head teachers from primary schools were selected to explore the level of awareness and practices for ESD in educational system in Pakistan because the importance of primary education cannot be overstated and primary education creates the literacy base of a nation (Rahman et al, 2003). Therefore almost in every country primary education is considered to be more important than higher education. The teachers and head teachers for the study were selected from both private and public sectors. In Pakistan private schools are always considered better than public schools in terms of their environment, better teaching and most importantly English is used as a medium of instruction. Considering the amount of contribution of private sector in primary education(34% of children from 5-9 years of age are enrolled in private schools), it cannot be ignored from the study (Ministry of Education (2003) National Plan of Action on Education for All (2001–2015).In the same way the student teachers from the course of B.Ed Honours for elementary classes were selected due to longer duration (4 years after 12 years of education) with a revised and developed curriculum and more effective teaching practices in schools in comparison to the other educational programmes so far (Nizamani, 2008).

Being a part and observant of all this system I can better feel myself in a position to initiate a study in this context to diagnose the challenges and hurdles and then suggest some remedies in the light of the perceptions of the researchers at the global levels and by the participants of the study at local level. Moreover all these factors caused a motivation of working on this study. I realized that it would be significant to identify the level of awareness for ESD in Pakistan and how far the goal and principles of UNO are going to be achieved even after the closure of the decade of sustainable development education 2002-2014.

## **1.2 Purpose of the study**

The main aim of this study is to investigate what kind of awareness and practices can be seen in promoting Education for Sustainable Development (ESD) by the teachers and student teachers in the educational institutions of Pakistan and the efforts of international agencies and the government of Pakistan to achieve it.

Now the decade for Education for Sustainable Development has come to an end and the question arises what progress has been made in the educational system of Pakistan for the implementation of ESD in the presence of many success stories such as Scotland. In this regard this study is set out to explore the experiences and current situation of ESD in Pakistan. According to Wales (2010) there are important differences to be observed in terms of both the content of EE (Environment Education) and ESD (Education for Sustainable Development Education) and the underlying pedagogical and didactic dimensions which are deeply connected to a country's or region's perspectives of citizen participation and democracy. This study pays particular attention to the actual implementation of ESD themes, pedagogies, initiatives and programs in national education system and in local schools, especially in the curriculum of primary and teacher education.

During the decade (2005-2014) for ESD many efforts are being taken, for example conferences and training workshops are being held to achieve this. In the developed countries much has been done in this regard. But in the developing countries, such as Pakistan, it is required to know that to what extent teachers are aware of the need for sustainable development education. In this context what if we trace the course of implementation plan from global agenda to the primary schools and in initial teacher education in Pakistan. This context is the starting point, and also a contributing motivation for this thesis. In this context the current study aimed to:

- determine whether the Pakistan's formal educational system is receptive to the principles of sustainable development education,
- identify predominant perceptions about ESD in the literature and analyse opinions on the role of teachers as change agents within the formal education system,
- explore the extent of infusing sustainable development education principles within the teacher education programme and using it as a tool for promoting innovation,
- identify the problems facing the implementation of sustainable development education in schools,
- assess the degree of top-down support for grassroots initiated innovations, and suggest measures that could be adopted to improve the situation of sustainable development education within the formal education sector,
- establish the type of infrastructure required to support sustainable development education initiatives in schools,
- identify opportunities promoting collaboration, on a horizontal and on a vertical level, between the major stakeholders in education, and identify the components of sustainable development education in ITE programme suitable for the emerging needs of the Pakistani formal education sectors.

The results of this research would help the researcher to know about the gaps in the practices among teachers to establish recommendation to achieve the goals of Sustainable Development agenda.

#### **1.4 Main research questions**

Keeping in mind all the above mentioned issues the study aims to encompass three main questions.

Q1. What are the main definitions and conceptual understandings are associated with ESD?

Q2. What is the current situation of practices for ESD in Pakistan?

Q3. Drawing from the research, what recommendations could be made to implement the practices for ESD?

#### **1.5 Limitation of the study**

- This research has been limited to:
- Explore the reflections and practices of ESD in primary grades and in initial teacher education Pakistan.
- Fifty three teachers from both public and private sectors located in Punjab
- Ten head teachers from both private and public primary schools.
- Fifty students of B.Ed Honours secondary/elementary programme.

## **1.6 Significance of the study**

This study explores the meanings and practices associated with ESD at an international level and in the context of Pakistan. It explores how this concept is defined and practised in a developing country like Pakistan and in literature worldwide. The research was initiated not only to satisfy the personal interest of the researcher about the learning for sustainability in Pakistan, but generally speaking it fills a gap in research in the field of ESD at two levels. One is at national level as this is first study which is conducted for ESD at primary grades level and in ITE (B.Ed Honours) in the context of Pakistan. At the international level this study will help to identify some interesting similarities and differences among different contexts of the world.

In Pakistan, few studies have been conducted in this field and mostly these involve catering for sustainable development education for sustainable development in higher education. A small number of studies are also available conducted by NGOs but these are limited to the institutions and areas where they have initiated their projects. This study can be regarded as one of the first to exploring the awareness of the idea of ESD by employing mixed methods research underpinned by interpretative methodology in Pakistan. It has been designed to explore the perceptions and practices of teachers, head teachers and student teachers in the field of ESD. It has provided extensive empirical evidences and so the results obtained from the present research regarding different approaches and challenges and recommendations of ESD might be used to inform the Ministry of Education in future developments for ESD in Pakistan. The review of literature showed that a small number of studies are available in the context of developing countries and especially, the countries in south East Asian region. Considering most of the similarities among the developing countries, the results of this study might also inform the current development of ESD in this context. This study took place at a time when the decade for ESD is coming to be an end and the beginning of new SDGs declared by UNESCO. Therefore it can help to articulate the feedback of the efforts in DESD in countries like Pakistan.

## **1.7 Outline/Plan of thesis**

This study comprised of 11 chapters including this one as follows:

- Chapter two is divided in three sections which deal with the context of the study in terms of geographical, historical features of Pakistan and its education system. The

part two of chapter two presents an overview of aims and programs of initial teacher education (ITE) in Pakistan. Part three of chapter two describes the status of environment education in formal education system in Pakistan and the collaborations of international organizations with government of Pakistan for the promotion of environmental education.

- Chapter three is divided into two main parts that deal with the main concepts in the study, namely sustainable development and education for sustainable development (ESD). The first part highlights definitions and major debates on sustainable development, mainly focusing on two perspectives, the developed countries' perspective and developing countries' perspective. The second part addresses the concept of education for sustainable development in terms of its definitions, relationship between environmental education and education for sustainable development, role of the teacher for ESD, role of the curriculum for ESD and teaching competencies for ESD. This chapter also presents an overview of ESD in Pakistan.
- Chapter four deals with methodology adopted for the study which is mainly based on an interpretative and phenomenological paradigm. This chapter presents a plan of research in terms of piloting, implementing and analysing the instruments used to collect the data which includes curriculum review, analysis of questionnaire and interviews.
- Chapter five presents the review of curriculum for primary schools and in initial teacher education in Pakistan mainly focusing on content related to sustainable development education. All the data obtained through questionnaire survey is presented and analysed in chapter six. Moreover, this chapter also reports field observations to support the analysis of the data.
- The analysis of semi structured interviews is presented in chapter seven. Chapter eight deals with an interpretation and a discussion of the findings in light of the research questions and reviewed literature.
- Chapter nine presents the suggestions and recommendations in light of the reviewed literature and through the views of participants of the study.
- Chapter ten deals with the introduction and efforts for new Sustainable Development Goals (SDGs). It also reflects on the pace of Pakistan to meet the targets and desired outcomes for the SDGs.
- Finally chapter eleven deals with the reflection on the findings and achievements of the present study with limitations and opening of new avenues for future research.

## **CHAPTER TWO (I)**

### **Context of the study: Education system in Pakistan**

#### **2.1.1 Introduction**

As this study is intended to explore the implementation of education for sustainable development in a specific segment of the educational system in Pakistan (primary schools & Initial Teacher Education ITE), it is appropriate to provide a brief introduction and overview of educational system and ITE and environmental education in Pakistan as a context of the present study. The first part of this chapter deals with a brief outline of, historical and structural contexts of the educational system. The second part of this chapter presents an introduction of ITE and the third part of the chapter deals with the environmental education in Pakistan.

After gaining the general information about Pakistan, part one of this chapter deals with the historical background and development in educational system and educational policies in Pakistan. The next sections will provide the understanding about administration of education, types of educational system, level of education, challenges with educational system in Pakistan and an overview of status of education in Punjab as this province has been considered for data collection for the study.

Education has been a priority for all the governments of Pakistan. The Constitution of Pakistan (1973) declared in Article 37 (b) & (c) that "the State shall remove illiteracy and provide free and compulsory secondary education within the minimum possible period; make technical and professional education generally available and higher education equally accessible by all on the basis of merit" (Ministry of Education, 2013).

Pakistan gained independence in 1947 at the end of British rule in the subcontinent. At the time of independence Pakistan was divided in two parts, East Pakistan and West Pakistan. In 1971 East Pakistan was separated from West Pakistan and became the independent country called Bangladesh.

Pakistan is situated in the region of South Asia, sharing its northern borders with China, western borders with Iran and Afghanistan, and India lies to the east of Pakistan. There is a vast diversity in landscape of Pakistan with hot deserts, lofty mountains covered with

glaciers and vast fertile plain area. Pakistan comprises four provinces Punjab, Sindh, Baluchistan and Khyber Pakhtun Kha (KPK) and two federally administered territories called FATA (Federally Administered Tribal Areas) and FANA (Federally Administered Northern Areas). Pakistan has around 162 million inhabitants (2005 estimate) and 97% of the population is Muslim. The country is composed of several ethnic groups of which, Punjabi is the largest. Punjabi is the most widely spoken language, with Urdu as the official language and English as the language of administration.



Pic: Map of Pakistan

The country has an estimated literacy rate somewhere between 52% and 59 % depending on the sources with big gender differences and differences between rural, tribal and urban areas. 36 million students are attending the educational institutions. Nearly 7 million children aged 5 to 9 are out of the educational system. Pakistan has gross enrolment rate (GER) at primary level is almost 58 % (UNDP, 2015). To have a better understanding for the educational system in Pakistan it would be helpful to have an overview of the historical background because history of any country indicates the influences on educational trends and policies with a passage of time.

### **2.1.2 Historical background of trends in education before independence**

There is anthropological evidence that education and learning has been part of Indian subcontinent civilization for at least 5000 years. Geographically, the region of subcontinent which is now Pakistan is located on the junction of many civilizations (Ali, 2007).

The territory of present day Pakistan was enriched with learning and with the presence of ancient Indus Valley civilization and Gandhara civilization. Ruins at Harappa and Mohenjo-Daro in Pakistan dating back to 3300 B.C., showed the



evidences of having advanced tools, arts, streets, and sewage systems. Moreover there are evidences of monasteries which were the hub of education and learning that supported the scholars (Ali, 2007). It is worth mentioning that the region of present day Pakistan was the passageway of different nations including Greeks, Afghans Arabs and Mongols due to its geographical location. These nations left their marks on the cultural, social and educational system of the region.

Pakistan traces its history of education to the advent of Islam. Before arrival of Islam, there was a strict caste structure of Aryans and education was not open for all (Gupta, 2007). Islamic/Arabic culture came to the Indian subcontinent with the invasion of Muhammad bin Qasim in Sind in 712 A.D. By that time, the Arabs had already recognised themselves not only as conquerors and administrators over vast territories in the Middle East and North Africa but even more significantly as creators of a culture enriched with literature, art, architecture, and religious studies.

With the establishment of Muslim rule in Sub Continent in 1208-1757 A.D the traditional school system had been the main source of education among Muslims until the rise of the British power. British introduced new educational system with English as a medium of instruction and it was called modern educational system. Increasingly, some leaders of the Muslim community, notably Sir Sayyed Ahmad Khan (1817-1898), urged the Muslim youth to join the modern educational system initiated by the British with adoption of English as a medium of instruction (Gupta, 2007).

In 1857 three universities were established in the cities of Calcutta, Bombay, and Madras, producing not only the subordinate bureaucrats as intended but also hundreds of university graduates were willing to take up higher education in the social sciences, humanities, and natural sciences. Many historians and researchers criticized the British educational system because this kind of educational system was not for masses it was for elite class only to produce bureaucracy (Gupta, 2007). The author of this education policy, Lord Macaulay was very clear in his philosophy that “we must at present do our best to form a class who may be interpreters between us and the millions whom we govern, a class of persons Indian in blood and colour but English in taste, in opinion, in morals and in intellect” (Qureshi, 1972, p.9).

Therefore, the British left the Indian subcontinent with limited but established education system. This educational system was implemented with local variations to the system, structure, curriculum and methodologies in different parts of the country. After gaining independence in 1947 Pakistan inherited this colonial tradition and structure of the education and still its effects are obvious.

Alongside this secular British education system a stream of religious education was also going on through traditional Islamic *madrassas*. In 1979 when Soviet invaded in Afghanistan these *madrassas* produced soldiers against Russia in favour of Afghanistan (Thomas, 2006; Andrabi et al, 2007). It was the time when the teaching of jihad (Holy war against non-believers) was emphasized strongly to motivate the students of these *madrassas* to participate in the guerrilla war against Russia (Khan, 1985; Yasmeen, 2003). However these students (Taliban) succeed in getting the powers over Afghanistan in 1996. Now the beginning of reforms actions is taking place in these *madrassas* by registering, implementing prescribed curriculum and proper monitoring.

### **2.1.3 Development of education in Pakistan**

The development of education in Pakistan started soon after gaining independence in 1947. At that time Muhammad Ali Jinnah the founder of Pakistan, proposed to shift the objectives of education from colonial-administrative focus to a professional and technical system, suited to the progressive economy (Hoodbhoy, 1998). In 1947 many issues were addressed in an education conference which outlined an educational philosophy emphasizing incorporation of both the fundamentals of Islamic traditions and modern science and technology. Moreover free and compulsory primary education was also emphasized. However, at the end of the decade 1947-1957, little of this ambitious plan was accomplished due to the unsettled socio-political and economic situation (Hayes, 1987). Therefore, during this period the major emphasis of the policies of government was remained on industrial development and human resource development rather than development of education (Jalil, 1998).

In 1959 the Ministry of Education recommended a complete reorganization of the country's educational system- its structure, curriculum, teacher training methods and examination. The commission also suggested that the teaching in primary schools should reflect local interests and the teachers should exercise sufficient initiatives in finding material for their lessons in the resources of their village and in the community (The Ministry of Education, 1959). Community involvement in the management of schools was also considered important.

In 1960s educational reform movements in the western world arose. To follow this from the mid 1960s onwards the focus of education in Pakistan was the reform in curriculum by production and dissemination of exemplary curriculum materials (Fullan, 1998; Hopkins1998). It failed to have an impact due to fact that in this process the involvement of teachers in curriculum development was neglected and it was not thoughtfully developed. Therefore, it was recommended that the teachers and the students should be involved in the running of educational institutions (Hopkins, 1998). During the period 1969 and 1971 in Pakistan, the teachers' pivotal role in the education system was highlighted. It also emphasized that the bureaucratic role must be reduced to a minimum (Ministry of Education and Scientific Research, 1970).

In 1972 the first civilian government formulated a new Education Policy by recommending the nationalization of all the privately managed institutions. This step was taken to provide opportunity for education to every citizen regardless of race, religion or class. The teachers serving in these institutions were absorbed in national pay scale.

At the primary level, in keeping with the socialist ideology (an economic ideology that seeks to maximize wealth and opportunity for all people through public ownership and control of industries and social service), government announced free and universal education. It was hoped that universal primary education would be achieved by 1984 (Hayes, 1987). The Ministry of Education (1972) also promised to revise teacher training courses according to new curricula and announced in-service teachers training courses. All these measures were beneficial for the development of education but they could not be implemented properly. It happened due to the fact that following to socialist ideology the government of Pakistan nationalized all the institutions and nationalization put a great deal of administrative stress and financial strain on the Government (Research Wing, 1984).

In 1978 the new military government denationalized the institutions and encouraged private education in contrast with the previous policy. This policy predicted that privatization would help to reduce financial burden of the state. Pre service and in-service teachers training was strongly recommended in this policy. Education administration was decentralised. They announced more autonomy to district authorities with sufficient powers and funds to oversee and administer education up to elementary level (Ministry of Education, 1978). In that era the education system of Pakistan was struggling with nationalization and denationalization,

socialization and Islamization and centralization to decentralization. There was a great feeling of dissatisfaction towards the performance of public education. This resulted in the subsequent education policy focusing on stronger central intervention and more demands and mechanism for accountability.

The National Education Policy (1992-2002) had an impact from the earlier policies on it. Main focus of this policy was the universalization of primary education. To eliminate the implementation gaps this policy allowed direct involvement of donors, the federal and the provincial governments, and non-government organization in the opening, management and maintenance of educational institutions at all levels (Mahmood et al., 1999). They also proposed the revision of curricula and announced awards and incentives for teachers with good performance (Ministry of Education, 1998). However, before this plan could be implemented the government changed. The new government considered many recommendations from the previous one and they invited the proposals from the public including intellectuals, educationalists, lawyers, scientists, newspaper editors, teachers and other sections of the society. All these proposals were incorporated in national Education Policy, 1998-2010. Examples of the remarkable progress in education from Malaysia, South Korea, Singapore, Indonesia, Sirilanka, and Maldives were also included (Ministry of Education, 1998).

This policy stated that the quality of education is directly related to the quality of instruction in the classroom. In line with this the policy proposed to improve the curriculum of teaching courses by making it more interactive. It was also recommended that the future teacher training would emphasize creativity and productivity through updating knowledge and skills (Ministry of Education, 1998). In order to meet the objectives of education policy (1998-2010), the government took certain steps such as upgrading teacher's qualification linked to higher pay scales, introduced in-service teachers training at all levels, and updating and reviewing the curriculum as well as, encouraging multiple textbooks options (Ministry of Education, 2001). During the period of 2001, the government of Pakistan constructed its education policy on a vision of the decentralization of the educational system. Initially they established decentralization of the provincial administration structure through the 18<sup>th</sup> amendment to the Constitution. According to this amendment, provinces are fully responsible and autonomous for education planning, policy, curricula, and standards.

In September 2013, the Government of Pakistan completed the formulation of the National Plan of Action (NPA: 2013-16) which is designed to accelerate progress towards education related goals and targets identified by MDG/EFA for 2015/16. The key objective of NPA (2013) is to make progress towards achieving education-related MDGs in the next 3 years. Specifically, the Plan aims at: Enhancing enrolment of out-of-school children in primary education; moreover, survival rate at primary level and completion of primary education by all enrolled children; improving quality of primary education (Pakistan EFA report 2015).

Table: 2.1.1 **Choronological development of educational policies in Pakistan**

<b>Chronological development of educational policies in Pakistan</b>	
<b>1<sup>st</sup> Educational policy 1948</b>	Shift of focus from colonial-administrative to technical and professional educational system.
<b>2<sup>nd</sup> Educational policy 1959</b>	Reorganization of curriculum with focus on local demands and emphasis on finding teaching resources locally, especially for primary grades
<b>1960s'</b>	Curriculum was reformed with dissemination of exemplary curriculum material.
<b>1972</b>	First civilian government nationalized all the private institutions, education was free and teacher education system was also reorganized.
<b>1978</b>	Military government denationalized all the educational institutions to lessen the burden on government and more autonomy to district administration.
<b>1980's</b>	Unsustainability in educational policies struggling with nationalization, decentralization and Islamization.
<b>Education Policy (1992-2002)</b>	Federal and provincial governments, donors and non-governmental organizations were allowed to involve in managing education and educational institutions at all levels.
<b>Education Policy (198-2010)</b>	Provinces were declared responsible and autonomous for education planning, policy, curricula, and standards.
<b>The National Plan of Action for Accelerating Education-Related MDGs (2013-16)</b>	Enhancing enrolments in primary education, improving quality of primary education.

This is a brief review of all the past educational policies introduced by different governments in Pakistan since its independence. It presents that the trends in education changed after gaining independence from colonial model of education to more professional and technical educational model. One can easily infer from the study of these policies that the main targets of all the policies were same. Each policy tried to achieve the targets of universal primary education, quality education, better quality of teachers training, community participation and so on. A close study of all these policies shows that there have been huge gap between what was planned and what was implemented. The various governments clearly set their goals and objectives, but strategies to implement these policies were not clearly outlined (Ministry of Education, 1998). Another factor which hinders the success of these policies is the lack of resources and funds. The budgetary allocation for education in Pakistan is lesser than other countries in the region. The current education budget allocation is less than 2% of the Gross

Domestic product (GDP). As compared to Pakistan, Sirilanka allocates 3.2 % on education, Nepal 2.7%, India 3.5% and Bangladesh 3.5% of their GDPs (Ahmad et al., 2013).

It is evident from the above reviews that much has been done but there remains much to be done. It would be appropriate now to have a brief overview of the organization of the education system.

#### **2.1.4 Administration of Education in Pakistan**

The education system in Pakistan is overseen by the Ministry of Education of the government of Pakistan. Hierarchical models have prevailed in the administrative structure of education since independence. Academic institutions are the responsibility of provincial governments whereas the federal government mostly assists in curriculum development, accreditation and some financing of research. The Education system in Pakistan is highly centralised with implementation of a uniform curriculum in all public sector institutions. The federal government is responsible for the implementation of policies through Ministry of Education at both federal and provincial level. Each province has its own Ministry of Education which is responsible for the implementation and monitoring of educational policies carried out by education foundations, directorates, boards and bureaus for the different levels of education. At provincial level there is a hierarchy of administration. Government schools are administered at the district level, and districts are further subdivided into clusters. One education district officer per district provides the main administrative link to the provincial government and plays a key leadership and connecting role in the delivery of education officers. (Ministry of Education, 2009).

#### **2.1.5 Major Educational systems in Pakistan**

In Pakistan there are three parallel systems of education, public education, private education and *madrassas* education (religious education institutes). These three types of educational system are different from each other in terms of their educational structure, curricula, fee, and methodologies/ approaches to learning and teaching/ approach to pedagogy.

Pakistan is an example of a country that has both public and private sector educational institutions, but with a larger portion of its youth attending private institutions than any other country. Public institutions are funded and organised by the government by charging a nominal fee. All the public schools follow the same curriculum and a centralised examination system at different levels. Another distinct feature of public school is the

enrolment for these schools, especially in the primary schools consists mostly of students from the poor and lower middle socio-economic classes of the society due to no fee education. Parents choose private institutions according to their capacity to pay the fee as these institutions adopt different fee structure depending on the standard of teaching and facilities provided by them. There is a rise of low cost private schooling with few elite high cost urban schools, particularly in Punjab because public education is always a focus of debate due to its poor performance. The system of government schooling does not respond satisfactorily to the needs of the society, because, it is considered to be poorly managed, poorly financed and poorly assessed (Memon, 2007). The ministry of education also supported the same conditions by stating that there are reservations upon the quality of teaching and learning in government schools from all quarters of the society (Government of Punjab, 2002). The number of private schools are increasing which reflecting the significant demand for education. Parents prefer private schools for several reasons such as: they are located near to home; teachers are more regular due to strict monitoring; English is a medium of instruction and preparation for examination is very important due to competitive environment among private schools (Ahmed, et al. 2013). In 2011-2012 private institutions enrolled 31% of the students who are in the basic education (pre-primary through higher secondary). In urban centres 51% of the students enrolled in private sector and in the rural centres 80% of the students attend the public schools (Pakistan Education statistics 2011-12).

The third stream of education is *madrassa* education, providing religious education. According to the Ministry of Religious Affairs there are 12,0000 registered and almost 10,000-13,0000 unregistered *madrassas* with enrolment of over three million students. These *madrassas* are mostly managed by local communities and are financed through charity and donations. These institutions have a different curriculum from public schools comprising mainly translation and memorization of the Holy Qurra'n and the teachings of Sunnah and Hadith (saying and practices of Muhammad (Peace be upon him). The *madrassa* education has different level of education like other educational systems. Moreover, *madrassa* issued certificate for different levels from primary to Masters level. *Madrassa* university is called *DarulUllum*. These *madrassas* charged no fee and free boarding and lodging from the students therefore, these are essentially schools for the poor class (Tariq, 2004).

These *madrassas* have been at the centre of debates since Pakistan joined the US-led war on terrorism. These *madrassas* are perceived as the hub for promoting extreme religious views which lead to militancy (Billquist, et,al 2006). Meanwhile it has been felt that there is a need

to reform *madrassa* to transform the radical ideologies with real Islamic moderate values, and teaching to make the *madrassa* students useful members of the society. In the backdrop of reforms, the government initially drafted the “Model *Deeni* (religious) *Madaaris* and *Madrassa* Board Ordinance 2001”, passed by the federal cabinet on June 21, 2002. According to the Ordinance, the government shall issue the gazette notification for the establishment of Pakistan *Madaaris* (plural of *madrassa*) Education Board which will modernize the education system and organize the *Madaaris*. For this purpose the government introduced modern subjects such as, English, Mathematics, Pakistan Studies and Computer Studies. These reforms could not be implemented in all the *madrassas* due to differences of ideas between government and *madrassas* (Ministry of Education, 2010). According to UNESCO (2013) out of almost 25000 *madarassa* only 449 *madrassas* adopted the reform policies introduced by the government.

Table:2.1.2 **Three parallel systems of education in Pakistan**

Public Education	Private Education	Madrassa Education
<ul style="list-style-type: none"> <li>•Funded by Government</li> <li>•Nominal fee</li> <li>•Enrollment is especially from low socio economic background</li> <li>•Centralised and uniform curriculum centralised examination system at different levels</li> </ul>	<ul style="list-style-type: none"> <li>•Autonomous institutions</li> <li>•Fee structure varies from one institution to other, usually high from public schools.</li> <li>•Most of the students are from middle and high income background</li> <li>•Decentralised curriculum except where the examination system is not centralised</li> </ul>	<ul style="list-style-type: none"> <li>•Funded by rich locals and Islamic countries</li> <li>•No fee</li> <li>•Enrollment is from poor socio-economic background</li> <li>•Curriculum is based on Islamic education</li> <li>•No examination system except few which are affiliated with education boards.</li> </ul>

### 2.1.6 Levels of Education

The education system in Pakistan is generally divided into six levels:

Pre-Primary; primary (grades one through five); middle (grades six through eight); high (grades nine and ten, leading to the Secondary School Certificate or SSC); intermediate (grades eleven and twelve, leading to a Higher Secondary (School) Certificate or HSC); and university programs leading to graduate and advanced degrees (Govt. of Pakistan, 2010).



**i) Pre-Primary Education**

Pre-Primary Education constitutes Early Childhood Education (ECE), prep or *Kachi* classes of children having age of 3-4 years.

**ii) Primary Education (Classes I – V)**

A number of 177,1100 primary schools with 438,823 teachers are functional. Moreover, 124 new schools have been added since July 2010. 72% of children aged 5-9 attend primary school with 79% for male and 65% for female.

**iii) Middle Education (Classes VI-VIII)**

Middle school follows with grades 6 to 8. It serves as a bridge between primary and secondary schools. 34% of middle schools are working in private sector while, 66% are in public sector.

**iv) Secondary Education (Classes IX-X)**

This is the final stage of schooling. Secondary education in Pakistan usually includes grades 9 and 10. This system of education contains 28,664 institutions. Total enrolment at secondary level is 57% whereas, 34% is in private sector and 66% in public sector (Pakistan Education statistics 2011-12).

**v) Higher Secondary / Inter Colleges (Classes XI-XII)**

Higher secondary schools and inter colleges in Pakistan contain Grades 11 and 12. The share of these institutions in overall system of education in Pakistan is 2%. In this sector the share of public sector is 67% while 33% institutions come under the umbrella of private sector. Despite this out of total enrolment in this sector the share of public institutions is higher with 89%, whereas 11% is in private sector.

**vi) Higher education**

In Pakistan higher education or the graduation system is classified into two systems: Undergraduate and Post Graduate systems. The undergraduate systems take two or four years to complete a degree. The two years undergraduate programmes are mostly in the fields of arts, humanities, sciences and so on, and the four year programs are mostly in the fields of professional educations, mostly in the field of engineering, medical sciences, agriculture and now in teachers training degree also. Out of total enrolment 93% are completing their degrees from public sector universities, whereas, 7% students are in private sector universities.

Universities provide high level skills and are responsible for the degrees of graduation, Masters, M.Phil and PhD degrees. Around 8% of population has a university qualification and the government of Pakistan plans to increase this to 20% by 2020. There are total 141 universities are working in both public and private sectors. Out of these, 79 universities are

public while 60 are working as private universities. Professional colleges and general colleges up to graduation level are affiliated with different universities. In Pakistan universities are autonomous bodies, although chartered by parliament. Furthermore, 11 foreign institutions were allowed to operate in Pakistan through franchising / collaborative arrangements with local institutions of higher education.

Table: 2.1.3 **Status of education in Pakistan**

Education in Pakistan							
Literacy rate	56%	Primary Education		Secondary Education		Higher education	
GDP spending Education	2.0%	(Age 5-9 Years) literacy rate	72%	(Age 14-15 years)	57%	Enrolment in Degree awarding institutions	8%
Male literacy rate	68.1%	Public enrolled	57%	Age 15 years and above)	12%	Number of Degree awarding Institutions(2014-15)	141
Female literacy rate	44%	Private enrolled	31%				

**Source:** Pakistan EFA (Education for all) Review Report 2015

Moreover, in Pakistan school education is organised by the Ministry of Education. The Curriculum Wing within the ministry formulates the national framework curriculum through a wide stakeholder consultation.

### 2.1.7 Punjab education reforms

The government of Pakistan has delivered autonomy to provincial government for the administration and management of education sector. Pakistan is comprised of four provinces, Punjab, Baluchistan, Sindh and Khyber Pukhtun Khwa (KPK). All the field data for this study has been collected from the Punjab. Therefore, it would be appropriate to have a brief view of the reforms currently underway to develop for education sector.

Punjab, Pakistan's largest province is home to over half of the country's 180 million people. It has almost 11 million school children taught by over 300,000 teachers in about 50,000 schools. Punjab has the highest literacy rate (59%) among other four provinces. Net enrolment at primary level in Punjab is 70.5% and Punjab spends 27.7% of its total expenditures on education (Pakistan EFA review report 2015).

The Punjab Education Sector Reform Program (PESRP) started in 2003. The Punjab Government met most of the PERSP's cost with the cooperation of World Bank and the UK

Department for International Development (DFID). This program was started by introducing three overarching goals: improving access, quality and governance in education.

The Punjab Schools Reforms Roadmap was initiated in 2010, funded by DFID. It was formulated in particular to keep the education outcomes of the schools and districts on track (Barber, 2013). This roadmap has created a data set of schools and a monitoring system for the better performance of schools. It provided a useful overall framework for teachers training programs and development of a quality curriculum. Under this program the Directorate of Staff Development (DSD) initiated the Continuous Professional Development Program in 2004 in all 36 Districts of Punjab.

In 2006, another step taken by the Punjab Government was the change in medium of instruction at primary level. It was initiated to address the parental demand, and to bridge the gap between public and private institutions (Bari, 2013). Teachers and students were not prepared for this drastic change. In general teacher's knowledge of English was limited; as a result, math and science teachers started asking to be switched to teaching in Urdu because of their lack of English skills (Bari, 2013). In 2009 school councils were formed. These councils are comprised of the Head teacher, parents, and local citizens, who monitor the performance of teachers and school results (Naseer,et.al., 2010). Despite all these developments still 21% of schools in Punjab are without sufficient building and 23% of schools have no sanitation facilities (Pakistan EFA Review Report 2015).

#### **2.1.8 Key Education challenges in Pakistan**

The efforts for improving the status of education in Pakistan could not achieve their desired targets due to many constraints. Public education has always been centre of debate due to its poor performance. The present literacy status of Pakistan in the EFA Development Index (EFI: 2008) is not very encouraging. Of the 127 countries assessed, Pakistan has a rank of 119, with only eight countries below it. In particular, it falls very low where Bangladesh 112, India 107 (UNESCO, 2013). Many authors have presented different arguments and explanations for this kind of situation. Warwick & Fernando (1995) observed that this situation results from low investment in education sector by government. Obviously lack of financial resources is a valid reason for the slow pace in educational development. There are several other challenges facing by education system in Pakistan such as:

**(a) Lack of access to education:** One of the key challenges is the 33% dropout rate before completing primary education due to variety of reasons (teacher absenteeism, poor school environment, family poverty, low level of literacy among parents and natural disaster).

**(b) Low levels of education quality:** A survey results indicated the lower mean score for assessment of students conducted in 127 districts of Pakistan. According to these results in the Mathematics results only 19% of the students, in science test, 33.5 of the students and in social studies test 43% of the students scored greater than mean score. (Pakistan Education Statistics, 2013). This mainly resulted due to shortage of trained and well qualified teachers, poor monitoring system and absence of basic facilities in schools such as proper building and other basic facilities. Therefore, it causes the learning of the majority of the students below standard (Habib, 2013).

**(c) Budgetary constraints and weak governance:** Pakistan spends only 2% of all total expenditures on education (Pakistan EFA review report 2015). In the development of education sector, weak governance is a major constraint. As stated earlier the education system in Pakistan is mainly experiencing a centralized top down hierarchy system of administration. Fullan (1993) states that the intended changes in education system cannot be brought about with conformist top down bureaucratic mechanism. Mostly the district and provincial education organizers and managers lack the required expertise and need good quality training to effectively implement education policies and plans in their respective regions. Moreover, shortage of school monitoring and supervisory teams, partly due to financial constraints and partly due to recruitment policies, has resulted in irregular and low quality delivery of service by teachers and support staff across schools. Community participation in school matters is also not effective, thus failing in monitoring educational quality (Pakistan EFA review report 2015). The Table below shows the distribution of basic facilities available in rural and urban locations (Table 2.1.4).

Table 2.1.4: **Distribution of public primary schools by facilities available in urban rural location 2012/13 in Pakistan**

	Building	Electricity	Drinking Water	Toilets
Urban	96%	50%	80%	72%
Rural	84%	24%	53%	52%

Source: Pakistan Education Statistics 2012/13; AEPAM

### 2.1.9 Conclusion

This chapter presented an historical background and development in educational policies and overall structure of educational system in Pakistan. Education in Pakistan is influenced by the different cultures of the subcontinent and colonial system of education. The educational system in Pakistan remained under experiments in the form of reforms and policy formulations during last 69 years. After taking many u-turns from centralization to decentralization now education system in Pakistan has reached in a semi-centralised system of administration. The understanding of the mechanism of educational system in Pakistan is necessary as it will provide a basis for exploring the challenges and opportunities for the implementation of ESD in educational institutions. In Pakistan three parallel streams of education are working together which are public education, private education and *madrassa* education. Although their share is not equal as public sector cater majority of population than other two sectors. In Pakistan hierarchical model is prevailing in the structure of education.

Pakistan spends only 2% of its GDP on education. This is lowest amongst all the developing countries even. It indicated that the education sector is growing with limited resources and even the consumption of these limited resources is not efficient and fruitful. Since independence every political and military government influenced the system of education through their policies and they could not succeed to achieve their set targets. Many factors are responsible for this gap in the implementation process such as, political instability, inefficient educational management, wastage of resources and noncommittal attitude of the government school teachers (Ministry of Education, 1998).

However, to date even none of the target determine in different education policies has been achieved completely but it is moving towards goal to some extent. The literacy rate is still low but it has improved. In 1990's it was 45 % and now it is 60%, total number of educational institutions have been increased. There has been improvement in the number of trained/qualified teaching staff in the schools of Pakistan. In addition, the primary school curriculum has recently been revised and physical conditions of many schools have also improved, although not up to satisfactory level. Following Table 2.1.5 shows the responsibilities of different stake holders which are reflecting Pakistani education system as well.

Table 2.1.5. Choices in the procedure of educating, in public academic institutions.

	<b>Curriculum Wing Ministry of Education</b>	<b>Regional/Provincial level Local Authorities Inspectors Teacher's choice</b>	<b>School level Head Teachers Communities</b>
<b>Aims and objectives</b>	National aims, as reflected in the National Educational policy	Evaluation/study reports of curriculum centres provide change directions	Some aims of effective domains are suggested by teachers
<b>Curriculum plan</b>	National framework: syllabus and weightage	Introduce unique/ regional aspects, including mother tongue	Scheme of work, adjustment of time-Table, provisions for co-curricular activities, exams
<b>Methods and approaches to learning</b>	Teacher training courses are designed, also in-service teacher training	Teacher's colleges implement training programmes (pre-service)	Practise different methodology
<b>Materials</b>	Provincial text books reviewed/approved by Federal Ministry through National Review Committee	Provincial Textbooks Boards commission, writers and select material on merit basis	Representation of teachers. In the National Review Committee

Source: *UNESCO* statistical yearbook, 1998

## **CHAPTER TWO (II)**

### **Initial Teacher Education in Pakistan**

#### **2.2.1 Introduction**

The focus of this study is about ESD in Pakistan and how teachers understand and teach it. For this study an overview of the teacher educational system is needed. Therefore, this section presents aims and programs of initial teacher's education (ITE) in Pakistan. Teacher education has been recognised as the forming bedrock of an education system. According to Darling-Hamond et al (2009) "the reconstruction and development of societies as perceived and planned by the philosophers and development professionals can see the face of reality only if these are merged in the educational process by teachers and incorporated in the plans and ideals of the students in their care" (p.51). In fact teachers are the key player in every educational system and teacher education is a crucial part in educational change and development. Research studies have established a relationship between teacher development and students' learning (Guskey 2002; Halai et al., 2004; Khan, et al., 2000; Sykes, 1999). The importance of the teacher as key figure in the education process has always been recognized. The most recent National Education Policy 1998-2010 in Pakistan also recognizes that the teacher is considered the most crucial factor in implementing all educational reforms at the grass-root level. The World Declaration on Education for All (1990) emphasized the role of teacher as under: "The pre-eminent role of teachers as well as of other educational personnel in providing quality education needs to be recognized and developed to optimize their contribution to improve their working conditions and status notably in respect to the recruitment, initial and in-service training, remuneration and career development possibilities" (National Education policy 1998-2010, Article 1.6 para 33, p. 58 in Mirza, 2003).

According to the Pakistan Educational Statistics 2012-2013 (Academy of Education Planning and Management 2012), more than 90% of the teachers with professional training work in public institutions. This means a vast majority of teachers working in public sector are trained but unluckily, the impact of teacher training both through pre-service and in-service programmes is not evident on the student performance (Academy of Education Planning and Management 2012). The poor quality reflected in student's learning is being attributed largely to the poor quality of teaching in these

schools. The National Education Policy of Pakistan (2009) described a direct relationship between the deteriorating quality of education and obsolete pre-service structure and less than adequate in-service training system for teachers.

The history of teacher education in Pakistan can be traced back to the time when Pakistan emerged as an independent state in 1947. The national education policies and five year plans developed and implemented over a period of 69 years have treated teacher education as a sub-sector of education. History of development of teacher education showed that a number of teachers' training institutions have been established over a period of time. Presently, nearly 300 institutions in public and private sectors offer a variety of teacher education programmes ranging from certificates courses to Ph.D. in education. Out of these total 257 are public institutions and 43 belong to private sector (Government of Pakistan, 2009; USAID and UNESCO, 2009).

There is a consensus amongst all stakeholders that the quality of teachers in the public sector is not up to satisfactory level. Moreover it is widely recognised that the quality of public education in Pakistan needs improvement due to large variety of factors. There are several governments' reports, policy documents, and documents produced through donor funded projects reports which identified the gaps apparently present in the teacher education system in Pakistan. According to these reports teacher education in Pakistan has been facing various challenges such as lack of consistent policy, inconsistency in curriculum, low resources, low quality of teaching process, lack of standard and so on (The British Council, 1988; UNESCO, 1990; Farooq, 1994; Ali, 2006; Saeed, 2007; Haider, 2008; Council on Foreign Relation, 2011; Bilal and Khan, 2012).

Research on ITE programmes in Pakistan reveals that these programmes develop the future teacher more in traditional ways. Although at a theoretical level this programme is designed to lead future teachers towards innovative teaching and learning approaches, the teacher education model itself does not coincide with this innovation message (Khattak, Abbasi, and Ahmad, 2011). In the ITE curriculum the guidelines are found to emphasize the use of innovative teaching strategies i.e. critical thinking, peer tutoring, collaborative learning and group work, but in actual ITE practice, student teachers are not exposed to these strategies (Tahir and Taylor 2013). The central evaluation tradition in different ITE institutions is considered to be the main reason for not moving away from traditional teaching and learning



methods, which mainly (80%) builds on upon theory-oriented questions (Khamis and Sammons, 2004). It means these questions are designed to test the memorization of text more than analysing critical skills and analytical skills.

### **2.2.2 The teacher education system in Pakistan**

Since 1947 several developments and amendments in teacher education took place by introducing various educational policies. Reforms were started by departing from the traditional teacher certification courses like Primary Teaching Certificate (PTC) one year of training after ten years of schooling and Certificate of teaching (CT) one year of training after 12 years schooling. In 2002, B.Ed elementary education degree programme was introduced to replace all certificate and diploma courses of teacher education in Punjab especially, PTC and CT courses. However, in other provinces, these certificates and diplomas continue to be offered.

According to the Education policy (2009a) Bachelor degree, with a B.Ed., is the requirement for teaching at the elementary level, Master's degree with B.Ed is the requirement for the secondary and higher secondary grades. PTC and CT are to be phased out through encouraging the present set of teachers to improve their qualifications, while recruitment of new teachers will be based on the advanced criteria (MoE, 2009a). This policy also recommended the providing of the opportunities for professional development through a training programme to all teachers. Moreover, training needs will be assessed on the basis of research and training programmes.

Teacher Education institutions are broadly divided into two major categories-colleges of education and institutes or departments at universities. There are five different kinds of public institutions that provide pre-service and in-service teacher education programs around the country.

1. University of Education
2. Education or Institute of Educational Research (IER) at universities
3. Public college of Education
  - i. Government Colleges of Education(GCET),
  - ii. Government Colleges for Elementary Education (GECE)
4. Bureaus of Curriculum (BoC) or Punjab Directorate of Staff Development (DSD).

Private sector is also contributing in teacher education and provincial governments would aim to draw upon resources from the private sector through public-private partnerships in the

areas of teacher education and professional development programmes (Ministry of Education, 2009a).

Keeping in view all the neglected areas of teachers' education, Ministry of Education formulated new plans for improvement. Among other reforms, a big reform in teacher education came when in Punjab, the University of Education was established in 2002, which was the first university to specialize in the field of education in Pakistan, and all Government Colleges of Elementary Teachers in Punjab were affiliated with this university. For the first time, three to four-year undergraduate programs were offered and recommended by the Higher Education Commission throughout the country.

In 2010 a new programme was introduced in all colleges of education and thirteen universities of the country through a project called, STEP (Strengthening Teacher Education in Pakistan). This project was funded by USAID and was launched with the collaboration of Higher Education Commission (HEC) of Pakistan. According to this program a four-year B.Ed Honours elementary/secondary degree was offered at the universities, while at the colleges of education a two to three-year Associate Degree in Education (ADE) was offered. All the colleges at central and provincial level closed down all the previously offered certificates and diplomas in education and have adopted the ADE (Associate Degree of Education) curriculum, while all the universities with Education departments also adopted the four year B.Ed Honours elementary/secondary program, planned under USAID-STEP and Higher Education commission of Pakistan (HEC). This programme is of longer duration (4 years after 12 years of education) with a revised and developed curriculum and more effective teaching practices in schools in comparison to the other educational programmes so far (Nizamani, 2008). Many studies around the world suggest increase duration for teacher education programme has direct relationship with the quality of teachers (Rice, 2003; Wayne and Youngs, 2003; Zeichner and Conklin, 2009; Goe, 2007; Darling Hammond, et al., 2009; Moir, et al., 2010). In the new ADE/Honours, almost 50% of the time is devoted to teaching practice. The assessment of teaching practice does not depend on external examiners but students are taught to evaluate themselves through the rubrics they are required to develop during their practice sessions.

**Table: 2.2.1 Structure of initial teacher education in Pakistan**

No	Program+ Duration	Level for which prepared
1.	ADE 12+1 year and 6 months	Primary
2	B.Ed.Hons 12+4	Primary and Higher
3	B.Ed. 14 years+1	Primary
4	Bsc, B.Ed 12 years+3	Primary and secondary
5	M.A Education 14 Years +2	Secondary and Higher
6	M.Ed B.Ed + 1	Secondary and Higher
7	M. Phil, M.A Education +2	Higher Education
8	PhD MPhil +3	Higher Education

The course of studies for the four year Bachelor in Education is designed by Pakistan's National Curriculum Review Committee with the collaboration of Higher Education Commission. The Education Development Centre (2012) reports that through this programme teacher educators have moved from predominantly teacher-centred lectures to student-centred collaborative learning. Furthermore, Bokhari and Rizvi (2013) found considerable progress relating to the use of ICT in teacher education programmes.

Like ITE, in-service teachers training courses or refresher courses for teachers are always known very significant. Looking at some provincial variations in Pakistan, first of all Punjab stands out with its completely different and yet strong networking for teachers. As mentioned earlier, in 2009 the Government of Punjab extended the use of English as the medium of instruction in mathematics and science in all Punjab's public schools. However, there was a great shortage of qualified teachers both in terms of subject and the ability to teach their subject in English. The British Council has been working with the Government of Punjab to reform and improve their in-service teacher education provision with the Punjab Education and English Language Initiative (PEELI) programme launched in 2013. Having successfully delivered almost 17,000 training days a year to approximately 5,000 Pakistani teachers and teacher educators, the programme will now be expanded from 2016 with the aim of delivering one million training days over the next three years, with 200,000 participants attending face-to-face training each year. This will contribute to improving the education of millions of Pakistani children (British Council, 2015).

Moreover, for the professional development, University of Education and a Directorate of Staff Development (DSD) were also established that work under the supervision of the Provincial Ministry of Education. The University of Education in Punjab was established with the main mandate of enhancing pre-service teacher education in the province and the

Directorate of Staff Development (DSD) was established to enhance the professional capacity of teachers, head teachers, teacher educators, and various categories of education personnel whose work affects the quality of learning in schools, directly or indirectly. The first two categories of teacher education institutions mentioned above were affiliated with the University of Education and worked under the administrative structures of the District Education Offices, until the New Teacher Education Reform 2010. DSD is not just doing in-service, it has also brought pre-service teacher education into its fold (DSD, 2012; Javed, Juan and Nazli, 2012; UNESCO, 2006).

### **2.2.3 Conclusion**

This review of ITE in Pakistan presented brief introduction and development in ITE courses. In order to bring improvements in ITE the Higher Education Commission has collaborated with USAID and undertook major developments and initiated ADE/ B.Ed Honours programmes. Along with pre-service courses, certificate programs and courses for in-service professional development are conducted through the Directorate of Staff Development, Punjab. Although, all these institutions are exhibiting development in the area of teachers' skills enhancement, these efforts should be expanded to whole Pakistan especially to rural areas of Pakistan.

In establishing background of the study for ESD along with a brief introduction of ITE programmes, the next section considers the nature and development of environmental education in Pakistan and it is considered as the initial phase of emerging ESD.

## **CHAPTER TWO (III)**

### **Environmental Education in Pakistan**

#### **2.3.1 Introduction**

This chapter presents an overview of the environmental education (EE) in Pakistan. The purpose of this chapter is to identify the efforts and initiatives taken for the promotion of environmental education in Pakistan as the phenomenon of EE emerged and got recognition prior to the idea of ESD. EE is considered to be an important element of ESD and first step moving towards the ESD which is focus of the study.

Like other countries of the world Pakistan is also facing several problems related to environment which are directly or indirectly related to sustainable development. Several studies have suggested that Pakistan's natural resources base is constantly declining (Shahid et al. 2005 p.12; Shah 2005a. and Shah 2005b). Pakistan is an agricultural country. It has an area of 796,095 kilometres with a coastline of 825 kilometres. Only 4.8% of the total area is covered with the forests. It has population of 134.510 million (67% rural). The growth rate of population is 2.3%. Clean water and sanitation facilities are available to 58% of the total population. 137 million acre feet per year of surface water are available and underground water resources are limited. Solid waste of over 50,000 tones is generated per day and most of it, including hospital waste, is dumped in low lying areas (GoP, 2014). Traffic in urban areas has increased tremendously resulting increase in noise and air pollution. Industrial emissions and affluent are major contributors in air and water pollution. Pakistan's annual deforestation rate is 2.1 % which is the highest in all of Asia and steadily increasing pollution is threatening local wildlife species. The per capita income is US\$ 490, literacy rate is only 60%. All these parameters determine the environmental concerns of Pakistan (Arif , 2009). To cope with this crisis, the need for environmental education has become the focal point of any future strategy for safe environment.

Several researchers such as Lee (2008) argue that formal environmental education helps students to develop more favourable attitudes towards environment. Similarly, Orr (1994) states that environmental education can awaken communities to sensitise the danger facing their environment and educational institutions can play an important role in promoting EE through a variety of learning and teaching strategies with multidisciplinary approach.

In Pakistan some traditions of environmental wisdom are quite ancient and rural population in Pakistan mostly relies on knowledge passed from one generation to other. This indigenous knowledge mostly contains eco-friendly practices. Nevertheless the inclusion of this phenomenon in formal education is at an initial stage and there is not a well-established education policy for environmental education. Environmental education (EE) is considered the domain of formal education in all the levels of education in Pakistan, environment-related topics appear in one form or another in some subjects such as geography, science and social studies. Hence it can be said that principles of environmental education EE are not altogether new. However, at the formal education level, EE is still new but progressing.

In the late 1990's, the principles of EE began featuring in textbooks (details are given in Chapter five). Around the same time, environment was introduced as a cross-cutting theme as well as a standalone subject at Bachelors' and Masters' levels.

### **2.3.2 National Environmental Education Policy**

The subjects of Environment and Education are on the concurrent list of constitution of Pakistan. It enables federal and provincial; governments jointly responsible for the environmental education. The federal Government is responsible for the making of policy, planning and coordination, and the provincial government is responsible for its implementation. In Pakistan the Ministry of environment and the Ministry of education have been promoting environment education (EE) by conducting educational activities in the areas of health education, water resources and management and urban and rural development and incorporating sustainable development concepts which are not integrated across different sectors (UNESCO, 2005). The National Education Policy (1998-2010) states that curricula at all levels of education would be reviewed to create a relationship between education and the environment (GoP, 1998). However, no specific policy guidelines were provided for EE moreover, the draft National Education Policy recommended "integration of environment in early education formally' without any details (GoP, 2007).

A government initiative to develop a concern for the environment through formal education was initiated in 1986 by the Ministry of Education, the Ministry of Environment and the Urban Affairs division, with the assistance of the South Asian Co-operative Environment Programme and UNESCO. This programme was known as Coordinated Environmental Education programme (CEEP) which was aimed at training teachers/educators, decision makers and planners. It also worked on curriculum research, production and the testing of the

environmental educational kits and materials. It also worked for better cooperation with national, regional, and international agencies in this field (Hagler and Bailly, 2000).

During its first phase the CEEP held a number of teacher training workshops, had the syllabi and text books of primary and middle classes revised for greater environmental emphasis, prepared a set of twenty educational charts on environment for distribution to schools, and prepared three teachers manuals on environment for primary and middle, and secondary school teachers.

The Ministry of environment drafted a National environment Policy in 2005, which emphasised mass awareness and community mobilization for the protection of environment. In its section on public awareness and education, the National Environmental Policy highlights:

- Development and implementation of national policy for raising environmental awareness among the general public and specific target groups such as political and religious leaders through a hierarchical national approach i.e. at the Union Council, Tehsil, District, Provincial, and Federal levels.
- Integration of EE into all levels of curricula and syllabi from primary level to university level.
- Establishment of environmental education and training institutions.
- Support for establishment of environmental clubs throughout the country (Gop, 2005).

The recommendations of the National Environmental Policy were general as a good start but could not be effective unless vigilant measures were adopted for implementation. The strategies in the light of policies and recommendations were developed but the objectives outlined in the strategies were not achieved due to lack of consistency, interest and monitoring. The environmental clubs were established in many schools but on a short term basis. Moreover these clubs were limited to the schools in urban areas and the schools in rural areas were neglected. Almost 67% of the population of Pakistan is living in rural areas.

As stated earlier the literacy rate in Pakistan is 60% and this low literacy rate proved to be a hurdle for successful implementation of policies because most people are unaware of the issues and their potential contribution and role in development and conservation (Arif, 2004).

### **2.3.3 National Conservation Strategy**

In response to United Nations Conference on Human Environment in Stockholm in 1972, many countries prepared environmental plans. These plans declared education and communication as an important aspect to be focused on (IUCN 1998). Through the Constitutive Act of the Union which was signed in 1948, recommended extensive national and international environmental programs (Ponniah, 1996). The government of Pakistan drafted the National Conservation Strategy (NCS) of Pakistan in 1992 for sustainable development in collaboration with International Union for Conservation (IUCN)- Pakistan after a number of consultative meetings with different stakeholders. The Pakistan Environmental Program (PEP) implemented an awareness-raising strategy which recommended:

- To specify target group-based environmental communication;
- To prioritize sustainable development;
- To mobilize media for furthering environmental awareness and concern;
- To adopt a holistic approach to EE;
- To attune students to problem solving;
- To promote environmental ethics;
- To initiate a non-formal education program for different levels of the society (GoP, 2005).

The efforts of the Ministry of Education and the NCS have to a large extent concentrated on public sector education; with the intention to change or rather redesign the curriculum. However, the private education sector, which contains 52-54 percent of school-going children, must also be taken into account (Ghulam, 2013 p. 10).

### **2.3.4 Establishment of environment education in higher education in Pakistan**

Several universities and institutions of higher education have started courses in different aspects of environmental studies. The World Wild Fund (WWF-Pakistan) signed a MoU with College of Earth & Environmental Sciences and Punjab University Lahore, to spread environmental education through WWF-Pakistan's International Eco-Internship programme. More than 38 universities in Pakistan are offering courses in environmental studies (see appendix.1) These courses and programmes are very helpful for prospective teachers in establishing knowledge and interests among them as well because many students start teacher education programmes after completing these degrees and courses with environmental education.



### **2.3.5 State of environmental education in the schools of Pakistan**

Considering the fact that environmental education is an effective tool for promotion of sustainable development (Gough, 2002), it would be appropriate to have an overview for the state of environmental education in the schools of Pakistan. Keeping in view the recommendations of NCS, the Ministry of Environment has included “introduction of environmental education materials in schools” as a key component of National Environmental Action Plan Support Program (NEAP-SP) – an umbrella program which is being implemented with the assistance of United Nations Development Program (UNDP) and donor agencies to support realization of Government of Pakistan’s National Environmental Action Plan (Ministry of Environment, 2003).

It is important to note that in Pakistan, EE is not taught as a separate subject. However, EE concepts like energy, greenhouse effect, pollution; microorganism, recycling, and ecosystem have been incorporated in the science curriculum of the primary and secondary classes. Moreover, textbooks of Urdu, English, Social Studies and Islamic Studies at primary and secondary levels also carry some environmental education concepts, which are presented as part of content in various chapters. However, there is very little attempt to make connections between concepts, especially between science and environment and vice versa. Furthermore, the textbooks lack guidelines for teachers to teach these concepts not only to create awareness and develop attitudes, interests and skills among students but also to equip students with strategies to take action in order to preserve the earth’s natural resources and to deal with environmental issues. Palmer (1998, p.96) argues that the introduction of environmental education as a means to addressing environmental issues presents a major challenge to the dominant conception, organization and transmission of knowledge in the schools. This creates a conflict for teacher with their approach to teaching and learning.

Arif (2010) suggests that by keeping in view the importance of EE, it should be given proper attention. For example, it is important to relate EE with daily life and local concerns to make it more effective. The environmental education content used in text books in Pakistanis mostly the translations of foreign ones which results in a variety of limitations for effective implementation. Moreover, due to lack in research in ‘what students know’ and ‘what students should know’ is leaving the issue of EE unresolved.

### **2.3.6 Green school programme and Environmental Education in Pakistan**

In Pakistan WWF-Pakistan was the first organization to introduce an environmental awareness programme known as *Green School Programme*. This programme was developed by environmentalists, educationalists, enthusiasts and experts from different walks of life and makes use of innovative teaching methods to create awareness among students to become eco-friendly and discourages pollution, promotes water conservation and planting trees.

This programme was launched in 2010, the programme has been immensely popular as over 15,000 students have enrolled in it so far, with the number constantly increasing. More than 50 school campuses are onboard and others regularly show interest in becoming affiliated with WWF-Pakistan. World Wide Fund for Nature – Pakistan (WWF – Pakistan) and Beacon house National University (BNU) have signed a MoU to jointly work towards spreading environmental education through WWF's Eco Internship Programme. WWF is targeting approximately 2000-3000 students each year especially, from private schools and colleges in Pakistan (WWF, 2012).

### **2.3.7 Support of international agencies for environmental education in Pakistan**

The Ministry of education and the Ministry of environment have continued working with the international agencies like IUCN, WWF, UNESCO, UNEP (United National Environmental Programme) and British Council in the areas of environmental education. Many other institutes also provided support for the environmental education like, Ozone cell, Energy Conservation Centre, Pakistan Forests institute, zoological survey, Sustainable Development Policy Institute (SDPI), Leadership for Environmental Development (LEAD), Pakistan Institute for Environmental Development Action Research (PIEDRA) Govt. of Pakistan (1996). The Centre of Environmental Education through Participatory Action Learning (CEEPAL) is also working with 180 schools across Pakistan.

Another project, called "Environmental Education Promotion at School and College Level," funded by the Swiss Development Corporation (SDC) launched and it targeted more than 200,000 institutions and 26 million students across Pakistan. It was developed under a United Nations Development Programme (UNDP) and donor-funded National Environmental Action Plan - Support Programme (NEAP-SP) and is being jointly handled by the Ministries of Environment and Education (IRIN, 2009).

WWF-Pakistan has one of the largest environmental education programs in the country. For past almost two decades, WWF Pakistan is committed to provide quality environmental education in schools and colleges in Pakistan. Apart from established practices of raising environmental awareness such as material development, teacher training workshops, etc., one of its more innovative approaches is its annual "Spellathon" campaign including children from classes VI to X. This is basically a spelling campaign arranged to generate funds that are invested into WWF conservation initiatives (WWF, 2015). Many other NGOs are also working for the promotion of EE but at very small scale. All these initiatives by international agencies in Pakistan are contributing towards EE but conditioned with the provision of funds from donors and lacking of continuity and sustainability.

### **2.3.8 Conclusion**

Since 1980 Pakistan has developed a number of policy frameworks on environmental and sustainable development issues. These were formulated mostly with the technical and financial assistance of the relevant UN agencies, such as: Vision 2025 for Forest Biodiversity Conservation, the National Forest policy, National wetlands policy, National strategy for sustainable development, Energy conservation Act, National sanitation policy and the implementation of the Multilateral Environment Agreements (MEA's).

Pakistan evolved a comprehensive National Conservation Strategy (NCS) in 1991 which was implemented through a National Environmental Action Programme (NEAP) financed from increased domestic resources and assistance from multilateral agencies, including the World Bank, the Asian Development Bank and the UN Development Programme (UNDP) and other UN entities. In 2008, Pakistan signed an agreement for cooperation in environment protection programs with UNDP as an initiative, whose implementation has enabled the formulation of the National Environment Policy.

In the late 1990's, the principles of EE began featuring in textbooks. Around the same time, environment was introduced as a cross-cutting theme as well as a standalone subject at Bachelor's and Master's levels (details are given in Chapter five). The government of Pakistan developed National Conservation Strategy (NCS) in 1992 and National environment policy (NEP) to raise the environmental awareness. At the school level the inclusion of content related to environment is included in the curriculum programmes. More than 20 universities are offering undergraduate, post graduate and doctoral studies in

Environmental Science, Education and Engineering. Establishment of Green schools can be seen in private schools mainly with the collaborations of WWF and IUCN.

Despite all these efforts in Pakistan, environment education (EE) has not been prioritized. However, it appears as a part of almost all of the environment-related documents. These documents generally lack practical approaches and implementation consistency to achieve the desired goals and objectives. It shows that policy formulation is easy, but implementation becomes challenging because on-the-ground situations are quite different. The existing administrative structure that serves as a platform for further development of EE programs should be strengthened. Even where EE programs occur, they are not long lasting and regularly conducted. Whenever projects related to conservation of natural resources were initiated, EE became the priority and unfortunately, it ended up with the end of project. Several environment-based projects and EE programs in schools are sporadic and area-specific, from which most of the population do not receive benefits. The focus of this study is the understanding and practices for ESD and environmental education is an important part of the sustainable development education and plays a role as background knowledge for ESD. For this purpose a brief review in the EE in Pakistan was presented in this section. The next section deals with the nature and development of the phenomenon of sustainable development and sustainable development education.

## **CHAPTER THREE (I)**

### **Understandings of Sustainable Development**

#### **3.1.1 Introduction**

This chapter is divided into two main sections. The first section reviews the definitions and understanding of sustainable development from different contexts. It provides a brief historical review of sustainable development (SD) and in order to present a clear picture of the study, this concept will be defined from an Islamic point of view and it will be critically reviewed in the light of the literature. A brief review regarding efforts for sustainable development in Pakistan has also been included in this section.

The second part of the chapter considers Education for Sustainable Development (ESD) in terms of its definitions, content, implementation and approaches drawn from literature in the curriculum and role of teachers and head teachers in exercising it. The purpose of this chapter is to provide a framework of efforts and suggestions for promoting ESD in the world with the help of viewpoints of different researchers and international organisations.

#### **3.1.2 Sustainable development: defined in literature**

The former secretary General of United Nations, Kofi Annan outlined the significance of SD by describing that "Our biggest challenge in this new century is to take an idea that seems abstract - sustainable development - and turn it into a reality for all the world's people" (Duncan et al., 2001).

Sustainable development is a difficult concept to define and as it is continually evolving. Researchers have offered a wide range of different interpretations and definitions of the concept of sustainable development. Often these definitions differ from each other by the emphasis placed on certain problems addressed in the concept of sustainable development. Generally speaking sustainable development is a kind of sustainability which is linking ecology, economy and society with each other. McKeown (2002) states that sustainable development is generally thought to have three components: environment, society, and economy and the well-being of these three areas are intertwined, not separate. One of the original descriptions of sustainable development is credited to the Brundtland Commission which defines it as:

“development which meets the needs of the present without compromising the ability of future generations to meet their own needs” (World Commission on Environment and Development, 1987, p 43).

Although, it was credited with giving the concept of sustainable development world recognition, this definition was thought to be vague and this vagueness added a controversy in it. Several researchers like (Dale, 2005) think that the resulting controversy over the definition of sustainable development has created a unique and constructive dialogue. Moreover, this definition helped considerably in evolving the concept of SD. The Organization of Economic Cooperation and Development (OECD) provided another perspective by stating that sustainable development can be defined in technical terms as “a development path along which the maximisation of human well-being for today’s generations does not lead to decline in future well-being” (OECD, 2001). The literature presents a wide range of definitions for ‘sustainable development’ in the context of different approaches and the interests of scholars and organizations. According to Brundtland report (1987) mainly, sustainable development is defined in the context of three approaches which are related to its three main imperatives which includes ecological approach, social and behavioural approach and economic approach (Dale, 2001). These three imperatives as constituents of sustainable development are also supported by many other researchers as well:

**Ecological approach:** The concept of sustainability is considered to be originated in the context of renewable resources such as forests and fisheries and evolved as a broad slogan by the environmental movement. Therefore, most proponents of sustainability have defined it as the existence of the ecological conditions necessary to support human life at a specified level of well-being through future generation (Lele, 1991, p 84). The International Union for Conservation of Nature (IUCN) added to the definition of sustainable development as: “the guiding rules are that people must share with each other and care for the Earth. Humanity must take no more from nature than nature can replenish. This in turn means adopting lifestyles and development paths that respect and work within nature's limits. It can be done without rejecting the many benefits that modern technology has brought, provided that technology also works within those limits” (Guijt, 2001, p.4).

The Earth Council (1996, p. 447) was created for the implementation of decisions from UN conference in Rio de Janeiro and offered such formulation: “Sustainability is a simple concept: to live on justice within our ecological opportunities.”

**Social and behaviour approach:** Sometimes sustainability is used with fundamentally social connotations. For instance, Barbier (1987) defines social sustainability as the ability to

maintain desired social values, traditions, institutions, cultures, or other social characteristics. UNESCO (2009. p, 2) states, "Sustainable development is the enhancement of peace, social justice and well-being, within and across generations."

Pearce (1993 p, 12) expressed similar views to Brundtland definition by adding that sustainable development is concerned with the development of a society where the costs of development are not transferred to future generations, or at least an attempt is made to compensate for such costs. According to many researchers sustainable development is a lifelong learning process that could be attained through changes in behaviour and life style. Jenifer A, Elliot, School of Environment University of Brighton suggests:

"Sustainable development if it is ever happens, will be a process in which every one learns all the time. Its cause is unlikely to be advanced by any group that simply assert their rights and authorities to teach others without, learning themselves." (Scott and Gough, 2006 p.32).

To support the same idea Ehrenfield (1995 p.183) notes: "The ultimate success of all our attempts to stop ruining nature will depend on a revision of the way we use the world in our everyday living when we are not thinking about conservation. If we have to conserve the earth in spite of ourselves, we will not be able to do it." The modern world today needs a new type of citizen, humanity with a change in behaviour as Tyler (1990, p. 613) states, "The cornerstone of sustainability is delivering programs that are effective in changing people behaviour." The World Wild Fund (WWF) International, (1996, p.27) also supports the same idea by stating that "Human behaviour is disrupting or sustaining environment of social processes. For them the key question is what kind they would be best for maintaining or achieving the spiritual harmony with the nature."

A group of researchers are with contrasting views that sustainability cannot be achieved through instructing the people to develop a change in their behaviours; rather it can be achieved through enhancing self-realization. Bateson et al (1999) argues that all the governments, scientists, experts, organisations, laws and treaties in the world will achieve nothing unless there are free-thinking and free operating individuals in a position to make their own decisions about the future of their natural environment.

**Economical approach:** The idea of sustainable development often leads towards the economic development as phenomenon of human needs for present and for future as apparent in its definitions. Economic development as mentioned earlier is an important aspect of sustainable development and the overall goals of environmental conservation and

economic development are not conflicting but mutually reinforcing. Consequently sustainable development views the concept of *economic efficiency* in a new way by emphasizing that long-term economic projects are supposed to be unprofitable unless long-term ecological consequences are taken into account (Barbier, 2005, p. 44).

Many environmentalists have associated economic growth with environmental degradation. Economic growth is however concerned with sustainability which means meeting the present needs without compromising future needs. Most societies want to achieve economic development to secure higher standards of living, now and for future generations and they also seek to protect and enhance their environment, now and for their children. Sustainable development tries to reconcile these two objectives.

Numerous economic activities are being practiced throughout all the countries of the world and these are considered to be the indicators of development. The use of technology is significant in all kinds of industrial and agricultural activities for making them more productive. If we look at Pakistan which is the main focus of the study, is an agricultural country and agriculture is Pakistan's main economic activity which is supported by technology to increase the production. In this situation the question arises to what extent the use of technology is sustainable? In this regard Holdgate (1993) suggests that the sustainability of technology may be judged by whether it increases production, but retains its environmental and other limits. It supports the idea of sustainable agriculture as Harwood (1990, p. 6) defines sustainable agriculture as: Sustainable agriculture is a system that can evolve indefinitely toward greater human utility, greater efficiency of resource use and a balance with the environment which is favourable to humans and most other "greater species". A majority of the researchers described the notion of sustainable agriculture in the notion of maintaining productivity, ignoring the environmental factor. In this regard Barbier & Markandya (1990, p. 661) described "we thus define agricultural sustainability as the ability to maintain productivity, whether as a field or farm or nation, where productivity is the output of valued product per unit of resource input."

As stated before the lack of a precise definition of the term 'sustainable development' has been helpful. It has allowed a considerable consensus to evolve in support of the idea that it is both morally and economically wrong to treat the world as a business in liquidation (Daly, 1991). Heinen (1994) advocates the same idea by stating that, "no single approach to 'sustainable development' or framework is consistently useful, given the variety of scales inherent in different conservation programmes and different types of societies and



institutional structures (p 26).”

The United Nations Development Program (UNDP) Report in 1992 presented a comprehensive understanding of sustainable development by describing that sustainable development is a development that is not only generating economic growth, but fair in distributing its results, restoring environment in a bigger measure than destroying it, increasing possibilities of people, instead of impoverishing them (UNDP, 1996, p. 35).

Sustainable development also implies such questions as economic sustainability and good health for quality of life and wellbeing. In this context it was defined by (Pearce, 1993 ; Barbier and Makandya, 1990) as, sustainable development involves devising a social and economic system, which ensures that these goals are sustained, i.e. that real incomes rise, that educational standards increase, that the health of the nation improves, that the general quality of life is advanced. Sustainable development, sustainable growth, and sustainable use have been used interchangeably, as if their meanings were the same. Nevertheless, sustainable growth is a contradiction in terms: nothing physical can grow indefinitely, sustainable use is only applicable to renewable resources. Sustainable development is used in this strategy to mean: improving the quality of human life whilst living within the carrying capacity of the ecosystem (OECD, 2001). Further, IUCN (2001) presented the concept of sustainable development as a development which is about realising resource potential. Sustainable development of renewable natural resources implies respecting limits to the development process, even though these limits are adjustable by technology.

All these definitions differ from each other by emphasising certain goals. Nevertheless their focus is on improvement of economic welfare and quality of life by conservation of natural resources wisely. Moreover, these definitions evolved with time by combining practice and theory together.

### **3.1.3 History of sustainable development**

The idea of sustainable development evolved within the idea of environmental protection. In 1962 Rachel Carson in her famous book “Silent Spring” brought together research on toxicology, ecology and epidemiology to suggest that agricultural pesticides were building to catastrophic levels and it was linked to damage to animal species and to human health.

In 1967 the Environmental Defence Fund (EDF) was formed to pursue legal solutions to

environmental damage. EDF went to court to stop the Suffolk County Mosquito Control Commission from spraying DDT on the marshes of Long Island.

In 1972, the United Nations Conference on the Human Environment held in Stockholm brought the industrialized and developing nations together to underline the 'rights' of the human family to a healthy and productive environment. In this regard they conducted a series of meetings e.g. on the rights of people to adequate food, to sound housing, to safe water, to access to means of family planning. The recognition to revitalize humanity's connection with nature, led to the creation of global institutions within the UN system such as International Union for the Conservation of Natural resources (IUCN) and World Commission on Environment and Development (WCED).

In 1980, the International Union for the Conservation of Natural Resources (IUCN) published the World Conservation Strategy (WCS). This Strategy asserted that conservation of nature cannot be achieved without development to alleviate the poverty and misery of hundreds of millions of people. It stressed the interdependence of conservation and development in which development depends on caring for the earth. Unless the fertility and productivity of the planet are safeguarded, the human future is at risk.

Ten years later, at the 48th plenary of the UN General Assembly in 1982, the WCS initiative culminated with the approval of the World Charter for Nature. The Charter stated that "mankind is a part of nature and life depends on the uninterrupted functioning of natural systems" (UN, 1993, p. 11). In 1983, the World Commission on Environment and Development (WCED) was created and, by 1984, it was constituted as an independent body by the United Nations General Assembly. WCED was asked to formulate 'A global agenda for change'.

In 1987, the WCED published its report entitled 'Our Common Future' and this report advanced the understanding of global interdependence and the relationship between economics and the environment previously introduced by the WCS. The report wove together social, economic, cultural and environmental issues and global solutions. It reaffirmed that "the environment does not exist as a sphere separate from human actions, ambitions, and needs, and therefore it should not be considered in isolation from human concerns. The environment is where we all live; and development is what we all do in attempting to improve our lot within that abode and these two are inseparable" (WCED.

1987, p. 32).

In June 1992, the first UN Conference on Environment and Development (UNCED) was held in Rio de Janeiro and adopted an agenda for environment and development in the 21st Century. *Agenda 21: A Programme of Action for Sustainable Development* contains the Rio Declaration on Environment and Development, which recognizes each nation's right to pursue social and economic progress and assigned to states the responsibility of adopting a model of sustainable development. Agenda 21 further reaffirmed that sustainable development was delimited by the integration of the economic, social and environmental pillars. The spirit of the conference was captured by the expression "Harmony with Nature", brought into the light with the first principle of the Rio Declaration: "Human beings are at the centre of concerns for sustainable development and they are entitled to a healthy and productive life in harmony with nature" (Brown, 1994, p 98).

In 1993, UNCED instituted the Commission on Sustainable Development (CSD) to follow-up on the implementation of Agenda 21. In June 1997, the General Assembly dedicated its 19th Special Session (UNGASS-19) to design a 'Programme for the Further Implementation' of Agenda 21 (Spangenberg, 2002).

In 2002, ten years after the Rio Declaration, a follow-up conference, the World Summit on Sustainable Development (WSSD) was convened in Johannesburg to renew the global commitment to sustainable development. The conference agreed on the Johannesburg Plan of Implementation (JPOI) and further tasked the CSD to follow-up on the implementation of sustainable development.

On 24th December 2009 the UN General Assembly adopted a Resolution ([A/RES/64/236](#)) agreeing to hold the United Nations Conference on Sustainable Development (UNCSD) in 2012 - also referred to as 'Rio+20' or 'Rio 20'. The Conference agreed to pursue three objectives:

- securing renewed political commitment to sustainable development,
- assessing the progress and implementation gaps in meeting already agreed commitments; and
- addressing new and emerging challenges.

The Member States also agreed on the following two themes for the Conference:

i. green economy within the context of sustainable development and poverty eradication,

and

ii.institutional framework for sustainable development (UNSCD 2012).

A brief history of sustainable development shows that the concept of sustainable development received its first international recognition in 1972 at the UN conference and then 15 years later in 1987 in *Our Common Future*, the report of the world commission on environment and development gained ‘classic’ definition of sustainable development:

“development which meets the needs of the present without compromising the ability of future generations to meet their own needs.” Since then a series of World Summit on sustainable development presented a range of partnership initiatives, key commitments included those on sustainable consumptions and production.

### **3.1.4 Critiques and complexity of sustainable development**

The concept of sustainable development has been critically reviewed by many analysts. A key criticism is, “how can we meet today’s needs without diminishing the capacity of future generations to meet their own” (OECD, 2001).

Some researchers have criticised the Brundtland definition for binding sustainability too closely to development and for focusing on human needs to the exclusion of other life and these critics do not appear to be agreed with idea of development and sustainability (Caride-Gomez, 2005; Bonnet, 1999; Rist, 2010). Jabareen (2008) supports the same idea by stating that the Brundtland report (World Commission on Environment and Development, 1987) emphasises the need for economic development to reduce poverty in the Third World, and ‘de-emphasizes the environment’ (p 181).

The researchers like (Gadotti, 2008) and (Bonnet, 1999 p, 33) state that development is not a neutral term and they expresses their concerns in a way that the concept of sustainable development does not at this time has the potential to surpass the ambiguous, vague, and problematic notion of development. Moreover, ironically they conclude that the pairing of development with sustainability was created to circumvent traditional attacks against development, giving it a tefelon coating and green ticket for consumer society’s bad habits.

Critics of this idea such as LeLe (1991) expressed their concerns due to the complexity of interconnectedness between human societies and ecological systems and how these are reacting to each other in different ways. In the same way Jickling (2002, p. 2) argues that the

sustainability approach “blurs the very distinctions required to thoughtfully evaluate an issue”. To counter this argument the proponents of sustainable development stated that a lack of clear distinctions and boundaries is inherent in complex problems that must be embraced in order to establish a process of reconciliation. In relation to this the Brundtland (1987) states, SD is the process of reconciliation of three imperatives which are ecological imperatives, social imperatives and economical imperatives.

Lele (1991, p. 208) has added in 'Sustainable Development: A Critical Review', with just a hint of irony, “Sustainable development, like beauty, is in the eye of the beholder; it therefore promises something for everyone. Sustainable development is a 'met fix' that will unite everybody from the profit-minded industrialist and risk-minimising subsistence farmer to the equity-seeking social worker, the pollution-concerned or wildlife-loving, the growth-maximising policy maker, the goal-oriented bureaucrat and, therefore, the vote-counting politician.”

The reviewed literature presents a critical analysis of Sustainable Development by adding that the idea of SD contains significant weaknesses such as there is ambiguity in perception of problems of poverty and environmental degradation, and confusion about the role of economic growth and about the concepts of sustainability and participation. For example there is a large debate on sustainable agriculture or sustainable development in agriculture. Most of the experts interpret sustainability in agriculture as simply maintaining growth in agricultural production while other researchers as Parikh (1987) are, in favour of limiting the crop production models. Not surprisingly contradictory messages have been received by the SD main stream. For instance, the World Commission on Environment and Development (WCED) acknowledged that the increase in agricultural production in the green revolution took place through nine-fold increase in use of fertilizers and pesticide sprays. This happens at the cost of soil salinization and pollution (WCED, 1987).

Social sustainability is also a major constituent of Sustainable Development phenomenon along with ecological sustainability and economic sustainability. Barbier (1989, p.430) defines social sustainability as “the ability to maintain desired social values, traditions, institutions, cultures, or other social characteristics”. Since ecological sustainability emphasizes the constraints and opportunities that nature presents to human activities and it is argued that human activities are influenced by social conditions which determine the ecological sustainability or unsustainability of the people-nature interactions. For example absence of inadequate measures to avoid soil erosion in farming can cause ecological

unsustainability but this kind of farming may have social roots, which would then be the social cause of ecological unsustainability. It needs to be addressed carefully as social unsustainability may have ecological cause and ecological unsustainability can have roots in ecological sustainability (LeLe, 1991). Several critics of sustainable development agree that the sustainable development model tends to be indifferent towards the cultural and normative dimensions of development. Anthropological studies show that although many tribal cultures and life styles (e.g., the tribal farmers, hunters, and fishermen of Amazonia) did not involve modern technologies, they were quite adequate to satisfy basic human needs without much environmental costs (Bodely, 1985).

It has been already pointed out by many critics that policies and institutions associated with market-based economic growth often worsen ecological problems, accelerate resource depletion and produce unsustainable development (Stokke, 1991, p. 27; Redclift 1987, p. 56; UNDP 1996, p. 63). It is also believed that sustainable development agenda acknowledge a rift between the rich and poor. In this regard the scholars like (Guha, 2006; Lele, 1991) see sustainable development as a continuation of elite environmentalism, a Western concept, producing the ultimate effects of transferring resources from the poor to the rich (More specifically proponents and analysts of SD need to clearly reject the attempts to focus on economic growth as a means to poverty alleviation and environmental sustainability simultaneously. IUCN states: “the most obvious area of complexity is the increasing divergence between the natural environment and economic development agenda of the primarily rich economically developed countries of the North and the social and economic development agenda shared by the poorer nations of the South” (Tilbury et al., 2002).

For some scholars, even the very principles of the needs of future generations emphasized by sustainable development is problematic, because the interpretation of human needs itself often varies between generations and between cultures (Langhelle, 1999). Although the Rio Declaration on Environment and Development (1992) signifies the participation of indigenous people, youth, and women as crucial for sustainable development, it is lacking in appreciation of the role of traditional, indigenous cultures and values in sustaining environment and caring for nature. In other words an adequate model of sustainable development would require the maintenance rather than replacement of various traditional cultures that are friendly and responsive to ecological health (Ried, 1995).

Here another challenge for sustainable development is to deal with existing structures of interclass and international inequalities. That's why the model of sustainable development initiated by Bruntland Commission Report, has been criticized for its indifference towards the unequal structures of income distribution that often worsen environmental problems (Jacob, 1994, Haque, 1999a). The inequality among the nations is an important issue because it is mainly the economically and privileged nations that are engaged in excessive production and consumptions of industrial goods, and, thus largely responsible for exhaustion of non-renewable resources, accumulation of toxic wastes, and emission of ozone-depleting gases. Paradoxically, it is argued in the developing countries, sustainability is not a vision of development but issues of unsustainable development- underdevelopment as well as haphazard development- are the drivers of Sustainable Development (Gorana, 2016).

All these criticisms are evolving around the definition presented by Bruntland Commission and demanding a revision of the idea of sustainable development by making the human-nature relationship more clear. In response of all these criticisms UNDP suggests that a new concept of "sustainable *human* development" is needed. This new concept is intended to address some of the criticisms of the concept of sustainable development, taking out reference to needs, and bringing in the concept of freedom. The report defines sustainable human development as:

"The expansion of the substantive freedoms of people today while, making reasonable efforts to avoid seriously compromising those of future generations" (UNDP, 1996, p 18).

### **3.1.5 Islamic perspectives on Sustainable Development**

Religions 'have always helped to shape civilizations and cultures through their stories, symbols, rituals and ethics' (as cited in UNESCO 2007: 4). Like many other factors, religion stands as a crucial factor that might influence SD. Therefore, Narayanan (2013) stated that there are three ways in which religion may play an important role in enabling sustainable development- through its values, through its potential for social and ecological activism and in the realm of self-development.

As stated earlier the focus of this study is to explore the status of ESD practices in Pakistan and majority of Pakistani citizens adhere to Islam, which is regarded as a main source of legislations and values. Sustainable development is compatible with Islam in social, economic, ecological, and political realms. There are numerous citations from Holy Quran and Hadiths (sayings of the Prophet peace be upon him) on sustainability and the wise

utilization of natural resources. They all lead to the conviction that all elements, species, habitats and eco systems are part of the perfect universe created by Almighty God. Hence respecting the law of nature is an obligation of every Muslim (Zubariah ,2012).

Islam is a universal religion and addresses the entire mankind not the believers alone. The main objectives of the Islamic law put broadly are “to promote the well-being of all mankind which lies in safeguarding their faith (din), their human self (nafs), their intellect (aql), their posterity (nasl) and their wealth (ma a l)”.

The Quran teaches us that everything in creation is made to exist in a perfect, harmonious balance. In this context Quran says,

“..... He has created sun and the moon follow courses exactly computed. And the herbs and trees both prostrate to Allah. And the Firmament has He raised high, and he setup the balance of (justice), in order that you may not transgress (due) balance. It is He who spread the Earth for creatures.....” (Ar-Rahman: 3-10).

Everything in the universe has been ordered into this delicate balance and the Quran teaches us not to destroy the balance (Abed et al, 2010).According to the teachings of Islam: Muslims, like others, must be strong both materially and morally to achieve these objectives. Rapid economic growth with priority for the fulfilment of basic needs and avoidance of wasteful expenditures are imperative to help move in that direction (Zubair, 2007).

Islam means peace and harmony and, therefore, the Islamic way of life entails living in peace and harmony. An active promotion of the harmonization of individual, social, and ecological interests would ensure sustainable development. The discussion is then framed in the context of the ordained role of human beings as God's trustees. Under this arrangement, God is the real owner of all resources, and humanity is allowed to use them to its advantage as long as this trust is not violated (Ansari, 2006).

Many verses from the Holy Qura'n are related to this phenomenon that humans are nature's managers, not owners and they have given a short term trust by their God.

“And it is He ( God) who has made you successors upon the earth and has raised some of you above others in degrees [of rank] that He may try you through what He has given you. Indeed, your Lord is swift in penalty; but indeed, He is Forgiving and Merciful.”(Qur'an 6, p 165).

Interestingly, this idea of human being as a ‘successors’ or stewards present in other Holy Books too such as; in Bible and in Torah by instructing their followers with a job description



similar to a noble janitor. Muslims are supposed to hold this responsibility deeply as they are forbidden to create corruption and pollutions and abusing their power and violating the trust. “Eat and drink from provision of Allah, and do not commit abuse the on the earth, spreading corruption” (Qur’an, 2, p 60).

Extravagance and squandering of resources increases the deterioration of the environment. That is why Islam has laid down many rules that prevent resources being wasted. Remarking on the characteristics of believers,

“And those, at spending, are not extravagant or niggardly, but they hold a just balance between those extremes” (Qura’n., 25, p 67).

“Do not waste through extravagance for God does not like the wasteful” (Qura’n, 6, p 141). “Verily, spendthrifts are brothers of the devils, and the devil is ever ungrateful to his Lord” (Qura’n., 17, p 27).

It is evident that the kind of economy that seems to be harmony with the Islamic beliefs is low consumption economy. The prophet (peace be upon him) emphasized strongly on simple living and discouraged people from luxuries, this in turn will minimise the ecological concerns. As stated by Al Jayyousi (2009) for instance consumers’ behaviour in the capitalist society based on sovereignty of the consumers. Every consumer is free to buy anything, advertisements and markets persuade to seek happiness through accumulation of goods which they may not have sufficient life to utilize. The result of such an attitude is that the people living in developed countries, who are barely 25 per cent of the globe’s population, consume 15 times as much paper, 10 times as much steel and 12 times as much energy as the remaining 75 per cent of people living in developing countries. It is obvious that the resources of the world are just not sufficient to afford the same life style for everyone on this earth.

Islam emphasized on wise use of resources and plantation of trees for instance: Prophet Muhammad (peace be upon him) once saw one of his companions named Sa’d performing wudu’ (ritual ablution before prayer). ‘Why are you squandering, Sa’d?’ asked the Prophet. Sa’d replied, ‘is squandering forbidden in wudu’ as well?’ ‘Yes, even if you are at a running river,’ answered the Prophet. (Musnad Ahmad: 425, quoted in Al Jayyousi, 2009).

“Plant a tree, but don't forget that it's a gift from Allah, and if an animal eats from it, you will be rewarded in the afterlife” (Imam Bukhari. Quoted in Al Jayyousi, 2009)).

An Islamic society is considered a good community which is based on *Taqwa* and *Taqwa* comprises of clusters of values like, *Adl* (Justice), *Ihsan* (benevolence) and benevolent spending in cause of God (*infaq*) *Taqwa* energises and leads the people away from acquisitiveness to a sustained effort aimed at spiritual self-enrichment and ecological and social awareness. Islam visualizes an economy where the resources are conserved rather than depleted and consumed away. There is, thus, a great need for all the people of the world to cooperate with each other. Global, regional and local governance need to be mindful of moral and rational imperatives to achieve world peace and prosperity (Jayyousi, 2001).

Overall, this discussion presented the significance of sustainable development as it is supported by both globally and religiously. A large number of verses in Quran and several sayings of the Prophet Muhammad indicate the great significance to environmental concerns, living with sustainability and the responsibility of man to environment. Sustainable development in Islam can be defined as the balanced realization of consumer welfare, economic efficiency, ecological balance and acquiring social justice in the framework of a model according to teaching of Qura'n and Holy Prophet.

### **3.1.6 Pakistan's efforts towards Sustainable Development**

It is evident from the literature review that generally, the concept of sustainable development became popular in the world after Agenda 21, and in the same year Pakistan adopted it in its developmental process. Pakistan actively participated in all three Rio summits and presented its country report on status implementation of sustainable development initiatives at the summit (UNCSD, 2012). In 1992 government of Pakistan adopted the "National Conservation Strategy (NCS)" as an official policy document. Khan, (2013) presented the Pakistan government's environmentally friendly efforts by stating that the government of Pakistan has started a National Cleaner Production Program to help the industries and tanneries to tackle environmental issues.

According to stock taking report (2012), new emerging challenges for sustainable development in Pakistan are security issues, need for vigilant civil society and good governance, population explosion and rapid urbanization, wasteful irrigation and use of chemicals in agriculture, energy crisis, lack of availability of and access to nutritious food at affordable price, the adverse effects of climate change. Moreover, studies show that most of the economic development in Pakistan has come largely at the cost of natural environment. The rapid pace of modernization, urbanization and industrialization has created serious

environmental concern in developing countries like Pakistan. Factors such as, increase in population and depletion in natural resources associated with economic activity are continuously accelerating environmental degradation in the country (Chu and Yu 2002). Pakistan, therefore proposed to include following principles under each of three pillars of sustainable development in response to the survey conducted by UN:

**a. Social pillar**

- i. Reducing inequalities
- ii. Promoting human rights
- iii. Ensuring sustainability

**b. Economic pillar**

- i. Promoting equity between and amongst countries
- ii. Fostering opportunities of trade and not aid
- iii. Addressing volatility in the economics of commodity prices and markets
- iv. Preventing external debt crises

**c. Environmental pillar**

- i. Promoting sustainable use of energy
- ii. Reducing burden of adaptation
- iii. Preserving and enhancing forests (Government of Pakistan, 2012).

The National Conservation Strategy (NCS) identified fourteen priority areas as Pakistan's environmental challenges such as croplands soils, enhanced irrigation efficiency, protecting wetlands, supporting forestry and plantation, restoring rangers lands and improving livestock, protecting water bodies and sustaining fisheries, conserving biodiversity, increasing energy efficiency, developing and deploying renewable sources of energy, prevention of pollution and urban waste management, supporting institutions for common resources and integrating population and development programmes.

Pakistan has formulated a number of policy frameworks and action plans addressing a wide range of environmental challenges and a federal environment office is being established under planning commission. The UN has been supporting the government and people of Pakistan through many UN agencies (UNDP, UNIDO,FAO, UNICEF, UNESCO). After the World Summit on Sustainable Development in 1992, UNESCO worked with Pakistan in protecting cultural sites and on the projects of clean water. Prior to the Rio Conference, Pakistan National Conservation Strategy (PNCS) was approved by the government of Pakistan in 1992. The institutional mechanisms for the implementation of the PNCS included

environment cells in several ministries, strengthening of a host of technical institutions dealing with environment issues, increased interaction with NGO's and a mass awareness campaign (UNCSD, 2012).

In 2007 Pakistan formulated a forward looking comprehensive policy called ' Pakistan 21<sup>st</sup> century: Vision 2030. It was developed by federal Planning Commission and it was meant to guide all the four provincial governments in elaborating all their development plans. A chapter on environment was added to the 7<sup>th</sup> five year plan; Sustainable development was highlighted in the Medium Term Development Framework (2005-10). The poverty reduction strategy called PRSP 2003(Pakistan Rural Support Programme) celebrated the implications of the environment-poverty nexus in Pakistan (Planning Commission Government of Pakistan, 2007).

The above discussion shows that sustainability as a concept is not yet a priority for Pakistan like other developing countries. According to Jalal (1993), there are two damaging elements of sustainable development, i.e, poverty and environmental degradation. Responding to this Alam (2012) claims that these two factors are not significantly affecting sustainable development in Pakistan unless, poverty alleviation and control of environmental degradation would be dealt simultaneously. Pakistan also lags behind comparing with the most developed countries of the world on a level of life quality which is the main criterion for sustainable development. The quality of life is determined by the main components such as life expectancy, welfare, education and state of environment.

Despite these positive developments mostly at the policy levels, the state of the environment is unsatisfactory and in some cases there is a rapid deterioration. The government of Pakistan identified several constraints likely to affect the implementation of PNCS such as the lack of adequate financial resources, technologies and technical deficiencies and the lack of an integrated framework for promoting sustainable development (UNSCD, 2012). The other major challenges for promotion of sustainable development agenda are to get sustainability on the agendas of the industry, educational institutions, financial institutions, national governments, local authorities, and the public. Once these agendas get priority in national policy the challenges can be tackled.

### 3.1.7 Conclusion

There is a wide range of definitions and opinions to describe the valuable status of sustainable development, moreover it increases interests in it and stimulates the search of new meanings and new sides of this phenomenon. There is general agreement that sustainable development requires the adoption of a comprehensive and integrated approach to economic, social and environmental processes (Banuri *et al.*, 1994; Najam *et al.*, 2003). However, historically discourses of sustainable development have given rise to considerable debate and concerns. the model of sustainable development initiated by Bruntland Commission Report, has been criticized for its indifference towards the unequal structures of income distribution The inequality among the nations is an important issue because it is mainly the economically and privileged nations are largely responsible for exhaustion of non-renewable resources, accumulation of toxic wastes, and emission of ozone-depleting gases. Paradoxically, it is argued in the developing countries, sustainability is not a vision of development but issues of unsustainable development- underdevelopment as well as haphazard development- are the drivers of Sustainable Development (Gorana, 2016).

Islam which is practiced by the majority of the population in Pakistan also supports the sustainable development. At government level, Pakistan is taking initiatives to follow the Rio agenda 21 in 1992 but the pace of progress in tackling certain issues for SD is unsatisfactory. However, despite being slow, Pakistan's initiatives towards sustainable development are definitely progressive. A point of start is considered as a vital element for further success in this direction.

The discussion above showed that a majority of scholars are agreed with the significance of sustainable development practices therefore, it is widely recognised that for an evolution and to create more supporters of the SD it should be a part of education at all levels. Therefore, next section of this chapter deals with the education for sustainable development (ESD).

## **CHAPTER THREE (II)**

### **Education for Sustainable Development (ESD)**

#### **3.2.1 Introduction**

In the previous section of this chapter, the focus of the discussion was on the understanding of the sustainable development agenda in the wider global and Islamic context with a brief overview of the situation in Pakistan. This section deals with the significance, history and understandings of education for sustainable development (ESD) with a focus on the elements and approaches of educational institutions practising ESD.

The literature indicates that learning about sustainable development is more than learning about economic development, social development and environment protection; rather it is the learning of how all these are interconnected. Education for sustainable development plays a crucial role in all levels of education, including life-long learning, by implementing valuable formation, behaviours and ways of life.

Learning for sustainable development revolves around a number of questions such as: what kind of sustainable development we should pursue? How can we generate enough wealth for a prosperous life without depleting the world's natural resources? How can we develop values, skills and culture that will guide people to pursue sustainable livelihood and participate in developing a democratic society? (Banerjee, 2003; Haque, 2000; Reed, 1996). In response to such questions, Dale (2005) suggests that sustainable development education involves thinking critically about the vital issues of humanity and proposes solutions for them. Sustainable development also addresses issues such as democracy, human rights, and health, etc. Therefore, the biggest challenge of education for today, and tomorrow, is to foster in students the capacity to learn and search for a balance between human development and ecological stability to make sure that people in all parts of the world and future generations have the possibility to meet their needs.

Considering the significance of ESD, the United Nations General Assembly adopted Resolution 57/254 and declared the period 2005–2014 as the Decade for Education for Sustainable Development (DESD). The overall goal of the DESD led by UNESCO is to integrate values, activities and principles that are inherently linked to sustainable development into all forms of education and learning and help usher in a change in attitudes, behaviours and values to ensure a more sustainable future in social environmental and economic terms (UNESCO, 2007, p. 5).

Therefore, reflecting on the literature in this field, this chapter presents a framework of all the key players such as pedagogy, curriculum, teachers and head teachers, with their possibilities and the implications for the implementation of ESD. Finally, I look at the literature addressing efforts for ESD in the context of Pakistan. This review of literature is intended to provide a context for the present study in the limited quantity of relevant literature available regarding Pakistan. Mostly I relied on official documents (National Education Policy 2010, UNESCO documents) and information given in Non-Governmental Organisations (NGOs) such as IUCN and WWF.

### **3.2.2 Emergence of Sustainable Development Education through Environmental Education**

The concept of sustainable development has been often associated with environmental education to promote development with wise use of natural resources. Often the question arises about the role of environmental education in establishing the phenomenon of sustainable development education. These issues are considered in this section.

There is a wide range of literature about the relationship between Environmental Education (EE) and Education for Sustainable Development (ESD). Several researchers have analysed the development and relationship of EE and ESD (Johnson 2011; Wesseling and Wals 2011; Öhman 2006; Reid and Scott 2006; Stevenson 2006). They all argue that ESD is not likely to replace EE, instead EE has become one of the important goals for ESD. According to Gough (2002) the epistemology of sustainable development literacy derives from environmental and ecological literacy with the addition of an emphasis on the interrelationship between human and natural systems.

Environmental concern in education can be traced back before the nineteenth century, although arguably it was not on the political agenda until the publication of Rachel Carson's *Silent Spring* in 1965 (Palmer & Neal, 1994). Since then, Environmental Education has become the focus of conferences and international policy agendas. Environmental Education entered into mainstream thought in 1970s largely with the support of the United Nations (Quoted in Palmer 1998, p. 5). The objectives of Environmental Education were focused on awareness, the acquisition of knowledge about the environment and its problems and the development of attitudes, values and behaviours that respect the environment. In 1970, IUCN developed the internationally recognized definition of environmental education. IUCN considers that "environmental education is the fundamental basis guaranteeing the

participation of communities in the process of conservation of natural resources and the improvement of the quality of life and the environment” (IUCN, 1992). Sauvé (1996) and González-Gaudiano (2006) argue that the human dimension has been included in the environmental education policy discourse since the 1970s. UNESCO (2005, p. 46) also resonates that environmental education is an already established school subject that emphasizes the relationship between humans and the natural environment, in terms of how to preserve it and how to appropriately manage its resources.

In 1990s, concerns over development at the cost of environment degradation emerged, as these are interlinked. Schmidheiny (1992) suggests that it is also essential to recognise that environment and development are two sides of a coin as many developmental trends degrade the environment. The document ‘Our common future’ traces the relationship between environment and development as “many forms of development erode the environmental resources on which they must be based, and environmental degradation can undermine economic development” (IGES, 2001 p. 11).

Hence the rise of global environmental problems regarding conservation of natural resources and development pose new challenges to EE. The ozone hole, the greenhouse phenomenon, desertification and scarcity of fresh water are seen as new threats. A series of international negotiations started in order to find new protocols, conventions and institutions to regulate global problems. All the Heads of States at the 1992 Rio summit emphasized the reorientation of education and they also agreed that concept of environmental education which were formulated in the 1970s were not broad enough to encompass the concept of sustainable development. Most of the work at these early stages was nature oriented, advocating from an environment protection perspective, although occasional mentions are found of economic and human development goals (Hopkins 2007). Nevertheless it was realised that these alone were not sufficient, as these must be considered along with social, economic and political control systems that are ultimately the source of these problems. According to many researchers, traditional approaches to environmental education alone are unsuccessful in presenting the interactions of humankind with each other and with the environment; sustainable development attempts to fill the gap (Huckle, 1999; Gough and Scott, 1999). The environmental and ecological disciplines are an integral component of sustainable development and these are the approaches to resolving environmental related problems.



Chapter 36 of Agenda 21 sought to bring together two sides of a coin: environment education and development education by under the term ‘Sustainable Development Education’. As a result, they suggested the reorientation of existing education to address the issues of sustainability. The United Nations Commission on Sustainable Development (UNCSD) was entrusted with the responsibility of monitoring Agenda 21 and UNESCO was designated by the UNCSD as the taskmaster for Chapter 36 of Agenda 21 (UN, 1992). Therefore, sustainable development puts environmental education into a broader context by considering social and cultural factors and social-political issues, such as equality, poverty and quality of life.

Despite recognising the significance of environmental education for providing a foundation for ESD, a debate among scholars started over how to define the relationship between these two concepts. Many scholars see this transition from the discourse of environmental education as a progressive move (Smyth, 1995; Tilbury, 1995; Huckle, 1999; Fien & Tilbury, 2002; Hopkins & McKeown, 2002). Their view is that ESD is merely an extension of EE. Robottom (1987) for example, believes that environmental education has generated powerful impact which has motivated educators to seek empowerment and new directions to explore the socio-political and economic dimensions. These dimensions are the main pillars of the sustainable development education. Several other researchers see ESD as regressive (Jickling, 1992; Sauvé, 1996; Dillon and Teamey, 2002). They believe that the discourses of ESD or other sustainability education formulations have largely displaced that of Environmental Education in international policy circles over the past twenty years. Jickling and Wals (2007) advocate this idea by stating that the United Nations promotes Education for Sustainable Development at the expense of environmental Education. They point out the ignoring of environment education in UN Resolution 57/254, which designated 2005-2015 the decade of Education for Sustainable Development, making no reference to the term Environmental Education. They find that Education for Sustainable Development is now seen as a replacement for Environmental Education, superseding and dislocating Environmental Education at national and transnational policy levels. Kopnina (2012) expresses similar concerns by stating that the shift in environmental education towards ESD has resulted in radical changes from an eco-centric focus, towards a focus on social issues and the fair distributions of resources. Although this may have encouraged recognition of a moral obligation to those in poverty in the developing world, there is less emphasis on caring for other species and eco systems.

In other words, on the one hand, the policy discourse of ESD represents continuity with the discourse of environmental education in terms of a common focus on process and the nature of that process. On the other, it reflects a discontinuity in giving more relative emphasis on social, political and economic issues. Fien and Tilbury (2002) have also attempted to delineate the differences between Environmental Education and Education for Sustainable Development in the influential IUCN document on ESD. They write that education with the objective of achieving sustainability varies from previous approaches to environmental education in that it focuses sharply on developing closer links among environmental quality, human equality, human rights and peace and their underlying political threads. Sarabhai, director of the Centre for Environmental Education in India, describes some of the boundaries between the two disciplines on the launching of the *Journal of Education for Sustainable Development*: “over the past decade, it is clear that Environmental Education, while continuing to be a champion in the promotion of Education for Sustainable Development, is not ESD itself. The two have their own distinct identities. EE, having shown the close inter-connection between human life and the environment, provides the basic understanding on which ESD is based. But EE needs to partner with a number of disciplines, such as economics, agriculture, management, engineering, design and peace education, in order to achieve the real scope of ESD” (Sarabhai, 2007a). This means that the discourse of ESD creates a broader and more complex agenda than environmental education, which is simultaneously more ambitious and more ambiguous (Stevenson, 2007).

Proponents and critics alike, however, seem to agree – implicitly if not explicitly – with sustainable development emphasising socio-ecological relationships and connections (particularly and not inappropriately on a global scale). Several researchers agree that there is not any deep theoretical divide separating Environmental Education and Education for Sustainable Development. Gadotti (2012) and Murcott (2007) believe that EE and ESD were critiqued for being oppositional but in reality the environmental processes were responding to ESD issues. However these researchers also mention some common ground EE and ESD share: “such as food security, poverty, sustainable tourism, urban quality, women, fair trade, green consumerism, ecological public health and waste management as well as those of climatic change, deforestation, land degradation, desertification, depletion of natural resources and loss of biodiversity are primary concerns for both environmental and development education” (Tilbury et al. 2002, p. 9).

According to Wheeler et.al (2000) “after an examination of many articles, it seems as if scholars use the different terms and names to make arguments concerning where the focus should lie.” However, for practitioners, environmental education and sustainable development education do not possess vast differences – as shown in Table 3.2.1, below.

**Table: 3.2.1: Features of Environment Education (EE) and Education for Sustainable Development (ESD)**

Description	EE	ESD
<b>1.Content</b>	Knowledge and understanding of the natural environment and impact of social and political system.	Environment in the context of social, political, economic. Focus on local global issues and their solutions.
<b>2. Methods</b>	Formal and non-formal mode	Lifelong learning process (anytime, anywhere)
<b>3.Learning approach</b>	Interdisciplinary, learner centred, experiential and inquiry based.	Interdisciplinary, learner centred, experiential and inquiry based. Stress on partnership and systematic learning
<b>4. Actions</b>	Environmentally sound skills and behaviours for decision making and citizen action.	Focus on citizenship action
<b>5. Values</b>	Environmental protection in social and economic context.	Environmental sensitivity. Inseparability of three Es’ (Ecology, Economy, social Equity).

**Source:** Wheeler et al. (2002, p. 23)

### 3.2.3 Education for Sustainable Development (ESD) defined in literature

In 1992, the concept of ESD was recognised internationally and since then ESD has been commonly adopted in articles, journals (Journal for Education for Sustainable Development (JESD), International Journal for Sustainability, Journal for Sustainability Education, etc.) and conferences. A wide range of literature is available which reflects the different interpretation and definitions of ESD by leading international agencies (UNESCO, IUCN) and researchers. According to Agenda 21, ESD should “deal with the dynamics of the physical, biological, social, economic and spiritual environment” (UNESCO, 2006, p. 33). UNESCO (2005, p. 14) defines ESD as: “an emerging but dynamic concept that encompasses a new vision of education that seeks to empower people of all ages to assume responsibility for creating sustainable future”.

The most readily available body of literature on ESD is presented by UNESCO and describes the vision of the UN Decade for ESD of a world in which everyone has the opportunity to benefit from education and learn values, behaviours and lifestyles required for a sustainable future and for positive societal transformation. UNESCO offers the following definition and understanding for ESD:

“Education for Sustainable Development (ESD) is a learning process (or approach to teaching) based on the ideals and principles that underlie sustainability-human rights, poverty reduction, sustainable livelihoods, peace, environmental protection, democracy, health, biological and landscape diversity, climate change, gender equality, and protection of indigenous cultures” (UNESCO, 2009 p. 28).

These definitions present the significance and a broad spectrum of ESD. In keeping with the acknowledged significance of ESD, Belwitt (2010, p. 16) comments on its adoption; “sustainability literacy should by now be woven into the fabric of our educational culture. Our present ignorance and lack of engagement is nothing short of shameful.” This means that the education for developing knowledge attitudes, skills and values that lead to sustainable and socially responsible behaviours must continue to be an educational imperative (Wright & Pullen 2007, p. 78).

Wagels (2003, p. 182) adds that ‘ESD enables people to develop the knowledge, values and skills to participate in decisions about the way we do things individually and collectively, both locally and globally, which will improve the quality of life now without damaging the planet for the future’. Like many activists/ scholars, Gadotti (2008) links his ESD work with the philosophy of fellow Brazilian Paulo Freire by recognising the issue of Education for Sustainable Development from the perspective of social justice and human dignity and ecology. Freire (2000, pp. 66-67) expresses the importance of these issues:

“It is urgent that we take upon ourselves the duty of fighting for fundamental ethic principles, such as respect for the life of human beings, the life of other animals, of birds, rivers and forests. I do not believe in lovingness between men and women, among human beings, if we are not capable of loving the world. Ecology gains a fundamental importance in the end of this century. It has to be present in any educational practices that are radical, critical and liberatory....In this sense; it seems to me a distressful contradiction to have progressive and revolutionary speech and have, at the same time, a life-denying practice. A practice that pollutes the sea, the water, fields and that devastates forests, destroys trees, threatens animals and birds”. Agyeman (2003) supports the same philosophy by stating that matters of environmental quality and human development are central to ESD.

The definitions and interpretations of ESD found in the literature reflect that sustainable development is one of the most complex, yet important, issues facing the young today. This conception of sustainable development focuses equally on four conditions: improving our

quality of life and well-being; meeting the needs of both present and future generations (*intra-* and *intergenerational* equity); justice and equity in terms of recognition (Schlosberg 1999, p.213), process, procedure and outcome; and the need for us to live within ecosystem limits (also called *one planet living*) (Agyeman, 2005, p. 164). This means Education for Sustainable Development demands improvement in quality of life that refers more commonly to economic development and well-being of all the societies. In this context, several researchers (Kopnina, 2014; Giddens, 2009) present the other side of the picture by stating that the idea of ‘development,’ ‘progress’ and ‘modernity’ actually creates social and economic inequalities and imbalance between environment and human activities. That is why the term ‘development’ always remains at the heart of the debate for ESD because the learning of ESD are supposed to create a balance between economic and social development without diminishing the natural resources.

A large body of literature (Fillo, 2006; Mpotokwane 2003; McKeown, 2002; Hopkins and McKeown, 2002) reflects on innovative and interdisciplinary teaching approaches for ESD. Rammel (2003, p. 126) combines the significance of environmental education with other disciplines for ESD by stating that sustainable development literacy requires a complementary understanding of elements of environmental literacy, but more generally requires an understanding of inter disciplinarily and requires the acquisition of process-based tools capable of managing unexpected change. It is not the subject or discipline of its own rights. Nor can the teaching be limited to a single course. Its themes must penetrate all subject areas at all educational levels. It can be argued that ESD is not a new course or new content, but rather it involves an understanding of how each subject relates to environmental, economic and social issues. Moreover, one of the educational challenges is to communicate the topics to students in a way they can understand and relate to their own lives.

The Rio document also signifies these approaches for ESD by noting: “to be effective, environment and development education should deal with the dynamics of both the physical/biological and socio-economic environment and human development, should be integrated in all disciplines, and should employ formal and non-formal methods and effective means of communications” (UN 1992). The study by Rammel et al. (2003, p. 130) suggests that sustainable development education requires a break with traditional thinking and the reductive analysis of isolated, static systems. However, it is not as easy as it looks because high aims of ESD in terms of content and pedagogy place additional intellectual and pedagogical demands on teachers and schools, especially in a centralised and discipline-

bound curriculum. Developing the content of this new educational dimension is a challenge and it requires educators at all levels to reach beyond school walls to involve parents, industry, communities, and government in the educational process (Sitarz, 1993, p. 200). According to Hart (1993) however, most of the teachers have not been assisted in this task because the environmental education policy and academic communities have maintained a focus on the development of environment-related goals and have neglected to probe deeply enough into pedagogy, particularly at the level of the teacher.

Moreover, critics like Jickling (1992, p. 8) argue that ESD seems to be imposing an agenda for learning because education is concerned with enabling people to think for themselves. Education 'for' Sustainable Development ... or education 'for' anything else is inconsistent with this criterion. As discussed above, the Rio document suggested a reorientation of education towards ESD. In response to this, Sauvé et al. (2007), while recognizing the need to legitimize learning for sustainability, also warned against imperatives for rapid educational re-orientation toward sustainability, wherein the need for action discourages reflexivity and critical thought.

Some scholars like Barraza (2003, p. 34) have presented their critical review for ESD in the context of dominant perception of the complexity of environmental issues and North-South politics. It was argued that globally 'agreed' education for sustainable development perspectives could be seen as providing the 'North' with yet another means to re-shape and re-define people's behaviours and thinking in the 'South'. Sharp (2006, p. 7) argues that a policy agenda of ESD formulated in the 'West' can become an effective control mechanism, and another expression of neo-colonialism. Several authors have noted that sustainability education cannot be assumed to be universally desirable; even as definitions and practices may be broadening, and wide space given to context-dependent interpretation, colonial histories are impossible to escape. Schooling, including for environment and sustainability, has displaced forms of traditional knowledge and its lines of transmission (Aikins 2016; Vare 1998). For example, in some contexts, policy for environmental education has been associated with forms of land conservation, in which Indigenous peoples and other citizens have been displaced and excluded from their land (Aikins, 2016). The critics in this context argue that parameters for learning sustainability recommended by international agencies based in the West are not same as in the developing countries. In this context, Sharp (2006) asks: "What moral base is there for maintaining that we need to ensure the survival of future

generations when the present generation is dying as a result of lack of housing, healthcare and food?”.

ESD as a concept has evolved over a period of time by passing through different phases of criticism. In fact, many experts suggest that ecological theories should be re-conceptualised in the light of evidence of the impact of human activity systems on the bio-geophysical properties of the natural world (Dale, 2001). Others detach it from traditional teaching methods and see it as student-centred teaching activity. Despite some criticism, there is convergence in the literature about the critical role of educational institutes in order to successfully design and teach in academic programs (Voorhees 2001; Baartman et al. 2007; Wiek, 2011). Education is the central point for the promotion of sustainable development activities, which is discussed in the next section.

### **3.2.4 Role of Education for Sustainable Development**

Education has a critical role to play in attaining and inculcating values encouraging sustainable development. The literature indicates the significance of shifting of educational paradigm towards ecology or environment which is not anti-economic development. Education for sustainable development plays a crucial role in all levels of education, as well as learning during one's whole life by implementing the valuable formation, behaviours and ways of life. In terms of sustainable development, education means dealing with how the future may be shaped in a sustainable way (Burmeister, 2012). Education which is the indicator of human development generates the awareness of environment protection and it further improves the economic development of a country (Alam, 2010). UNESCO has mentioned five indicators for the significant role of education for sustainability including the social impact of education, education as a strategy for development, and education as a tool for environmental conservation and adaptability to bring socio-economic change.

Considering the significance of education and sustainable development, the United Nations General Assembly adopted Resolution 57/254 and declared the period 2005–2014 as the Decade for Education for Sustainable Development (DESD). The overall goal of the DESD led by UNESCO is to integrate values, activities and principles that are inherently linked to sustainable development into all forms of education and learning and help learner in a change in attitudes, behaviours and values to ensure a more sustainable future in social environmental and economic terms (UNESCO, 2007 p. 5).

One cannot deny the significance of the role of education in shaping society. Wheeler (2000) suggests that Education for sustainable development can empower individuals with recognition that everyone has a role in the shaping of her life, her home, her workplace, her community and her world. The Rio Summit Agenda 21 (1992) supports the same idea by stating: “Education is critical for promoting sustainable development and improving the capacity of the people to address the environment and development issues.” *Agenda 21* is divided into forty chapters focusing on sustainability and its Chapter 36 is dedicated to promoting sustainable development through education. This Chapter 36 emphasises three major thrusts to begin the work of ESD: improving basic education; reorienting existing education to address sustainable development; and developing public awareness and understanding and training.

Reflecting *Agenda 21*, the first challenge for the promotion of the idea of Sustainable Development is the improvement in basic education and rate of literacy. An educated citizenry is necessary to carry out sustainable development. Research shows that basic education is a key to a nation’s ability to develop and achieve sustainability targets. For instance, Education can improve agricultural productivity, enhance the status of women, reduce population rates, and enhance environmental protection (McKeown, 2002, p. 16). Several scholars agree that four to six years of education is the minimum threshold for increasing agricultural productivity (Appleton, 1996; Godoy, 1998). In the same way education is necessary for the development of principles, skills and values related to sustainability. In many countries, the current level of basic education is very low, severely hindering national plans for sustainable future. A higher education level is necessary to create jobs and industries that are *greener* (i.e., those having lower environmental impacts) and more sustainable (Rosalyn 2002, p. 79).

The second priority of, and a challenge for, ESD is reorienting education. The United Nations Decade of Education for Sustainable Development seeks to reorient education throughout the world ‘to develop the knowledge, skills, perspectives, and values which will empower people of all ages to assume responsibility for creating and enjoying a sustainable future’ (UNESCO 2004). Stevenson (2007) highlights the role of teachers in the process of reorienting education for ESD by arguing that that, given such a mission, education for sustainable development (ESD) or education for sustainability (EfS) represents an ambitious, complex and broad in scope educational reform that presents significant intellectual, pedagogical and strategic challenges for schools to enact. Moreover, he argues that this is not a simple a task for teachers as the participants involved in the construction of these



discourses have been largely policymakers and academics – hence practitioner voices have been left marginalised. Hargreaves and Fink (2006, p. 1) express the same ideas by stating: “Change in education is easy to propose, hard to implement, and extraordinarily difficult to sustain”. It demands that administrators and educators at every level understand the change required for ESD. Another challenge in this regard is the pedagogy necessary to teach a revised curriculum in the classroom. For tackling this, in-service and pre-service teacher education can play its role. UNESCO (2002) presents concern by noting that it is very unrealistic to retrain thousands of practising teachers and administrators to bring them in the broad scope of ESD. McKeown (2002, p. 78) also emphasises “we need to find ways to harness the existing skills, of the current educational labour force. We call such recognition and use of the skills, knowledge, and talents of current practitioners a ‘strength model’ for professional development and training”.

In any country, public education system is managed by authorities from ministerial to university/ college/ school level. The focus of education in any country is development and progress and it demands change with the change in demands in society. According to some scholars, such as Hiebert (2013), ESD is threatened by unsustainable models which include Western education model with compulsory schooling for all and formal current education system is thought to be operated by an economic value system. This economy paradigm of education is a reflection of larger neoliberal economic system which operates in a very linear way and the focus is largely on inputs and outputs and subsequently an emphasis on performance values (Vanderburg, 2000, p. 6, Stevenson, 2007).

This means that most governments have focused on the role of schools in preparing workers to compete in this new global knowledge-based economy through centrally defined curricula; an emphasis on mathematics, science and technology; and an increased reliance on standard measures of student performance, including international comparisons, as indicators of the quality of education (Carnoy, 2000). In contrast, the discourses of environmental education and ESD emphasise holistic and interdisciplinary teaching and learning by engaging students in critical inquiries into real issues of environment and development and in actions addressing those issues. High stakes assessments are being interpreted by many teachers as demanding basic skills (e.g. reading comprehension) rather than powerful or ambitious learning, and as pressuring them to do more traditional teaching in order to cover the material that might be tested (Grant *et al.*, 2002).

This leads towards an unsustainable pattern of growth. ESD needs to be based on an entirely different set of values. It means that, for the reorientation of education, we first need to sort out by which core values we want to reorganize our societies into being more sustainable. Once this is clear, we can change or reorient education accordingly. While recognizing the need to legitimize learning for sustainability, Sauvé et al. (2007) also warn against imperatives for rapid educational re-orientation toward sustainability wherein the need for action discourages reflexivity and critical thought. This concern can be addressed, as mentioned above, by an evolution (rather than revolution) in reorienting education to achieve the goals for ESD.

Another challenge is to reorient and structure the curriculum as a place-based curriculum. Pyle (2007) argues that place-based education has become more important as young people's acquaintance with their local environment is diminished, owing to the increased amount of time spent "indoors with media that direct their attention away from the local" (Louv, 2005). Creating opportunities for children to derive knowledge from their local environment will develop the sense of affiliation with the places they live but this is only possible if there is a change in the centralised curriculum and in the education system as a whole.

It can be concluded in the light of the literature that education has a potential to play a vital role in the realization of sustainability vision by linking ecology, economy and cultural diversity. Education for Sustainable Development revolves around a number of questions, such as: What kind of sustainable development we should pursue? How can we generate enough wealth for a prosperous life without depleting the world's natural resources? How can we develop values, skills and culture that will guide people to pursue sustainable livelihood and participate in developing a democratic society? (Banerjee, 2003, Haque, 2000, Reed, 1996). Dale, (2005) suggests that sustainable development education involves thinking critically for the vital issues of humanity and proposes solutions for them. Sustainable development also implies questions of democracy, human rights, health, etc. Therefore, the biggest challenge of education for today, and tomorrow, may be to foster in students the capacity to learn and search for a balance between human development and ecological stability to make sure that people in all parts of the world and future generations have the possibility to meet their needs.

Generally, this requires an understanding of interdisciplinarity and a process capable of managing unexpected change. Therefore, it is appropriate to explore the ways to achieve the desired outcomes of education for sustainable development. The efforts towards acquiring

outcomes for ESD in an education system can be indicated through different models given in the next section. These models can fit in different educational contexts across the world.

#### **3.2.4.1 Models of education for acquiring objectives of Education for Sustainable Development**

The goal of sustainable development education is to explore the reconciliation of critical ecological, social and economic imperatives, and these imperatives may be seen as completely ideological. How can education play a role in achieving these goals? Different theories have been developed in answering this question. Scott and Gough (2003) outline three theories of linking and learning, sustainable development and change. Three models can be developed from these different theories. These models present the level of achievement of goals of ESD depending on the efforts towards ESD. These are as follows:

1. Education *about* sustainable development
2. Education *for* sustainable development; and
3. Critical education *towards* sustainable development

Education about SD (model 1) refers to approaches to SD in most schools, but it is widely seen as ineffective because of the widespread focus on cognitive knowledge in the practice of environmental nongovernmental organizations (NGOs) and governmental agencies (Kallumus and Agyeman 2002, p. 248). Visser (2002, p. 81) agrees that many education institutions have incorporated ‘green’ preambles that are not sufficient to allow principles of sustainable development to leave deep imprints on education, or on how education institutions are being run. Scott and Gough (2003, p 111) declare this to be ‘Type 1 ESD’.

The second model, “Education for Sustainable Development,” refers to a change in attitudes and behaviours. UNESCO’s Decade of Education for Sustainable Development emphasises values as a starting point: the overall goal of the DESD is to integrate the values inherent in sustainable development into all aspects of learning to encourage changes in behaviour that allow for a more sustainable and just society for all (UNESCO, 2005).

Therefore, it can be concluded that education *for* sustainable development is about practical and contextualised learning about how to live a better life and care for the present and future of the Earth. The first two models can be identified as what Vare and Scott (2007) call ‘ESD

1'. Vare and Scott link education *towards* sustainability (model 3) with ESD 2 which involves building the capacity to think and act critically in relation to sustainability. Scott and Gough (2003, p. 113) note that ESD 2 raises the question of what is to be sustained and for whom. The answer given is development of critical consciousness through a process of reflection and action which is the central concept of Paulo Freire's educational theory of radical change through literacy education (Freire, 1972). Table 3.2.1, below, shows that the focus of ESD 2 and model 3, education *towards* sustainable development, emphasises generating knowledge through critical action and developing active and critical citizenship. In relation to ESD, two interrelated and complementary approaches are helpful in thinking about learning sustainable development. These can be termed 'ESD 1' and 'ESD 2' (Paul, 2007).

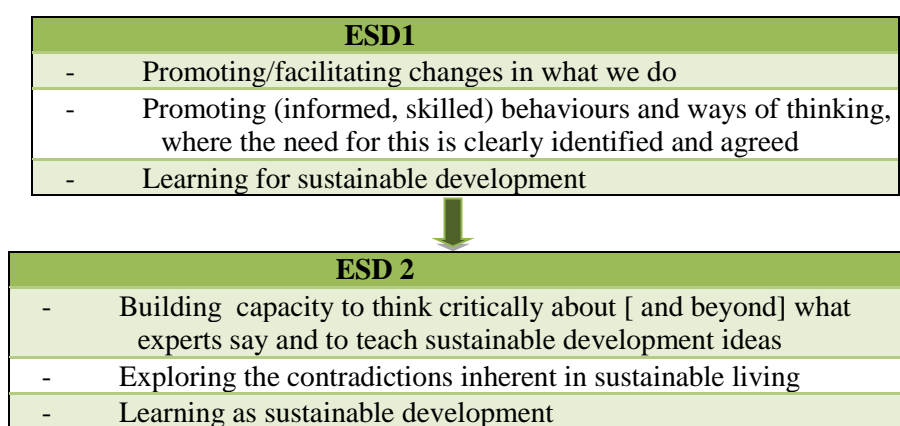


Fig 3.2.1 Educational models for ESD

ESD 1 fits with the section of the UN Decade's implementation plan (UNESCO, 2005) which says that ESD promotes set of underlying values, relational processes and behavioural outcomes which should characterize learning in all circumstances. ESD 2 involves the development of learners' abilities to make sound choices in the face of the inherent complexity and uncertainty of the future. As Scott and Gough (2003, p. 71) state, by learning throughout our lives we equip ourselves to choose most advantageously as the future unfolds. This would not bring about sustainable development. Rather, it would be evidence that sustainable development was happening. Shohel (2006) refers to these models in a manner that shows the first model, 'education about sustainable development', providing awareness which is related to the content present in curriculum. The second model, 'education for sustainable development', Shohel sees as focussing on actions which change the attitudes and behaviour and then develop lifelong practice. Then the third model, critical

education towards sustainable development, emphasizes generating knowledge through critical actions, and the development of active and critical citizenship (Shohel, 2006, p 61).

To contribute to an understanding of the transformative approach necessary for ESD, Sterling (2001) summarizes the different levels of learning and change (see Table 3.2.2 below) with an arrow representing a move towards the higher order learning required for transformation.

**Table 3.2.2: Levels of learning and change for ESD**

Orders of change/learning	Seeks/leads to	Can be labelled as
First order change Cognition	Effective/efficiency	‘Doing things better’
Second order change Meta-cognition	Examining and changing Assumptions	Reformative
Third order change Epistemic learning	Paradigm change	‘Seeing different things’ Transformative

**Source:** Sterling (2001, p. 2)

This table shows that Sterling suggests an evolution in learning for acquiring ESD goals. It seems that first order learning is about acceptance of all the values and knowledge inculcated through education without examining or suggesting any amendment in them. This is also called “passive learning”. Most academic institutions are primarily engaged in this kind of ‘first order learning’ where the stress is on ‘information’. The basic values and knowledge remains unchanged and unexamined.

In second-order learning the learner examines the interconnection among existing knowledge or concepts (Koestler, 1980). Better types of formal educational practice seek to develop the learner’s ability to undertake such second-order learning. Third order learning refers to epistemic learning which can also be labelled as *transformative* learning. It is the process by which an entirely new world view is created and learner’s entire outlook is transformed. It is also called the higher order skills for learning. According to Education Scotland (2015), learning for sustainability is associated with the higher order skills required for academic attainment and quality education.

In a formal education system it is not easy to undertake third-order learning. According to Sterling (2001, p. 5), to achieve this level of learning, two requirements must be met. Firstly

the learners must admit that they have no clear answer to the question: What is the way forward? Second learners must recognise that until they have gone successfully through transformative learning exercise, they are not in a position to design or conduct an ESD formal education programme.

It is evident that these levels of learning lead to a greater sense of urgency about the necessity to improve the education of our children with the development of their higher order thinking skills and their ability to apply these skills effectively. These skills can thus enable them to invent and contribute to the 'new world' (Wilhoit, 2011, p. 53). The challenge is then to give it practical shape in the form of curricula and courses in formal education programmes. Selby (2007, p. 10) argues that moving from first order to second order, and from second order to third order, learning can be inspiring, challenging and may also cause student resistance. It may be challenging for teachers who are working in a policy context which promotes sustainability on the one hand and economic growth on the other. According to Sterling (2001), as most formal education is concerned with first order learning, this presents major challenges to educators attempting to encourage higher levels of learning and change.

These developments in the new millennium demonstrate national recognition of the critical role that education plays in the attainment of sustainable development. However, most countries are still in the early stages of implementing the goals identified by these strategies and have only just begun to establish frameworks that support changes at the practical level (Tilbury & IUCN CEC, 2001). In the context of this review of literature, the level of learning for ESD in Pakistan is evidenced in the empirical part of this study. It is also argued that no matter at what level of learning we are, there must be a start, and that this may be the stepping stone necessary to encourage move ahead to other levels of learning (Sterling, 2001). The involvement of the whole mechanism from classroom level to policy-making level could encourage the transformation and learning necessary to prepare student teachers for the challenges in the sustainable future. The literature presents a number of pedagogical strategies in this regard which are discussed in next section.

### **3.2.5 Pedagogical strategies for ESD**

Once the objectives of ESD are established, another challenge appears: to devise the strategies to achieve these (Rickinson, 2003). ESD is not a new phenomenon in terms of knowledge and pedagogies and has been built upon the educational foundations that came

before it. It is clear in the above discussion that ESD requires transformational change in learning and in pedagogies to move from the level of ESD 1 to ESD 2. This approach is focusing on preparing learners for lifelong learning, an adaptive quality that makes the learner more adaptable in a time when most societies are experiencing dramatic social, environmental, and economic transformation (UNESCO, 2005). Consequently, this reorientation in learning process is thought to require an entire reconceptualization of *how* and *what* learners should learn to find out the best available teaching methods by keeping ESD's objectives in mind.

To introduce innovative concepts and values in educational system, adding content in courses is not sufficient. Instead, altering how we teach, whatever we teach, can develop those values. In terms of pedagogy, there is a wide body of literature on how ESD is meant to be achieved. To devise teaching strategies for ESD is not an easy task, as it is evident in the literature that the adopted strategies should target the motivation of the students. Several scholars (such as Zint, 2013, Booth, 2012) explore the gap between people's knowledge about environmental problems and their motivation to behave in accordance with their resolution. There are many theories to explain this gap by pointing out the priorities of the people. Giddens, (2009) has noted that modern society is confronted by a number of social, political, and other problems and may fail to prioritize something that seems too abstract and too complex such as ecological crisis. Lundmarck (2007) explains this by stating that, if people are asked to choose between different priorities, such as combating climate change or ensuring that no jobs or economic benefits are lost, people tend to choose social and economic priorities over what seem to be more distant worries about environmental protection.

Therefore, it is clear that educating people to care about environmental problems and social values without raising their motivation is not an effective strategy to achieve the objectives of ESD. Due to this fact it is important to identify the methods of teaching to make students not only knowledgeable but also involved and motivated. Consistent with this idea, several pedagogical strategies or theories can be associated with ESD, emphasizing development of values, knowledge and skills to support sustainable development. Concepts such as deep learning (Warburton, 2003), problem-based learning (Dale & Newman, 2005), transformational learning (Kevany, 2007), experiential learning (Ellis & Weekes, 2008; Jucker, 2004; Sipos, Battisi, & Grimm, 2008), active learning (Ellis & Weekes, 2008; Svanström et al., 2008), action learning (Sipos et al., 2008), participatory learning (Jucker, 2002; Malhadas, 2003; Rode &

Michelsen, 2008;), applied learning (Kevany, 2007) inquiry-based learning (Ellis & Weekes, 2008; Murray & Murray, 2007), critical pedagogy (Welsh & Murray, 2003), service learning, and critical emancipatory pedagogy (Sipos et al., 2008) have all been included in pedagogical recommendations about ESD. Further, many authors have associated ESD with interdisciplinary (Bartlett, 2004; Calder, 2003; Dale & Newman, 2005; Everett, 2008; Malhadas, 2003; Reid & Petocz, 2006; Rode & Michelsen, 2008; Sherren, 2008; Wright, 2002), multidisciplinary experiences (Dale & Newman, 2005; Everett, 2008; Jucker, 2002; Malhadas, 2003), and trans-disciplinary approaches to education (Jucker, 2002; Sipos et al., 2008).

All these pedagogies set a path towards learning for sustainability in a variety of ways. There are some fundamental similarities in all these approaches including meaningful social interaction, personal reflection, real life problem solving and a broad view of knowledge to enable the learner for thinking themselves and for the world they live in. Moreover, all the pedagogical theories associated with ESD embody a constructivist epistemology and complex adaptive system. To support the same ideas, Wade and Parker (2008) suggest that the pedagogy of ESD should emphasize an inter-disciplinary, culturally and relevant, student-centred practice based on shared and group learning for problem solving.

### **3.2.5.1 Vygotskian approach (constructivism) and ESD**

As discussed above, ESD needs a development of critical consciousness through a process of pedagogies. This ideology can be linked with the choice of pedagogy for ESD as well required to move from the level of cognition to epistemic learning (Sterling, 2001).

The following discussion explores the pedagogical theories and strategies associated with ESD underpinned by a constructivist approach. Consistent with this philosophy, pedagogical theories and strategies linked with ESD emphasize the development of values supportive of sustainable development. The theory of constructivism introduced by Vygotsky advocates that students can solve problems under the guidance and collaborations of adults and peers. Consequently, constructivist pedagogy includes individual-and activity-centred curriculum emphasizing real world problem-solving that guided by a teacher considering the learner's own determination (Marsh and Wills, 2007).

According to Curriculum for Excellence in Scotland (the name given to new curriculum in Scotland introduced in 2010) sustainability requires pedagogies which foster in learners the



ability to think critically and creatively and to analyse, evaluate and synthesise complex issues and apply their learning in new contexts. Pedagogies should also encourage a systems thinking approach (Education Scotland, 2014). This perspective indicates a highly active learning environment in which learners are able to explore and experiment through a variety of activities that motivate them to assimilate and accommodate. The classroom is active with problem-solving experiments, rather than dominated by direct instruction (Pressley, 1992; Tuckman, 1992; Wadsworth, 1978; Piaget, 1970).

The teaching strategies underpinned by constructivism can lead towards *transforming learning*. From a constructivist point of view, subject matter must be made personally relevant to the learner, allowing an opportunity for personal meaning making. Mainly, subject matter should not be presented in a fragmented, isolated fashion that demands memorization and regurgitation, but should instead present the learner with an over-arching problem and the major concepts that punctuate it (Brooks and Brooks, 1999; Terhart, 2003).

A notable process of this approach is that the resources used to assist learners on their journey are less likely to be textbooks and more likely to be primary data or supplemental materials (Brooks & Brooks, 1999). Consequently, course content is rarely concrete. For example, a constructivist teacher may present one major question, expose learners to a collection of resources to help them answer it, then allow time for learners to explore what they think, share their propositions with others, and allow their hypotheses to be criticized (Brooks & Brooks, 1999; Hodson & Hodson, 1998). Similarly, subject matter must emphasize multiple perspectives, relying less on a prescribed set of information to disseminate uniformly to learners and more on the use of various perspectives of learners themselves. This means that evidencing variability in a topic is important to assisting learners in understanding how their learning may apply to new and different situations (Brooks & Brooks, 1999 and Fosnot, 1996). In this atmosphere, learners are allowed to follow their own inclinations, reconstruct what they know, and arrive at an uncommon knowing that is inclusive of many different perspectives on truth. Learners must also be allotted time for reflection and time to pay attention to their own thinking and learning process (Terhart, 2003).

Despite the recognising effectiveness of this approach, according to many scholars this process is very challenging and takes time, more time than traditional didactic methods (Brooks & Brooks, 1999; Millar, 1989). Stevenson (2007) makes the same argument by

stating that, not surprisingly, *Transforming Learning* has become a significant concern for practice as additional intellectual and pedagogical demands are placed on teachers and schools. This can leave teachers feeling overwhelmed, especially given the absence of illustrative examples or case histories of sustainable societies which could provide support materials.

Therefore, teachers must resist the temptation to cover a broad range of material rather than honour the human process necessary to reach a deep of understanding necessary for transfer to other contexts (Confrey, 1990; Fosnot, 1996). It is also suggested that teachers should conceptualise the educational process as involving critical inquiry, including ideological critique, in which learners are encouraged "to explore the complexity and implications of sustainability as well as the economic, political, social, cultural, technological and environmental forces that foster or impede sustainable development" (Fien & Tilbury, 2002, p. 10). For instance, the list suggested by Wals and Jickling (2002) summarizes the various shifts necessary in ESD pedagogies:

- from consumptive learning to discovery learning and creative problem solving, promote critical thinking to develop confidence in addressing the challenges to sustainable development;
- from teacher-centred to learner-centred arrangements, allow learners to participate in decision-making on the planning and content of educational programme;
- from individual learning to collaborative learning;
- from theory-dominated learning to praxis-oriented learning, employ a variety of educational methods, such as literature, art and drama and debate to illustrate the processes.
- from sheer knowledge accumulation to problematic issue orientation, address local as well as global issues, and avoid jargon ridden terms and language
- from lower level cognitive learning to higher level cognitive learning;
- from emphasizing only cognitive objectives to also emphasizing affective and skill-related objectives (p. 229)

The above discussion, by focusing on numerous strategies for practising ESD, shows that ESD needs a development of critical consciousness through a process of pedagogies. Friere (1972) believed that there must be no traditional notion of schooling and imposed authority, the facilitator should be known as coordinator and dialogue should replace old-fashioned rote learning. This process of pedagogies is known as 'consciousness raising'. This ideology can

be linked with *ecopedagogy*, a critical approach to the teaching and learning of connections between environmental and social problems (Misiasek, 2015). This approach is required to move from the level of cognition to epistemic learning. In addition this approach enables teachers and students to better understand socio-environmental issues from globally diverse perspectives through transformative actions (Gadotti, 1996). It requires self-reflexivity and deeper socio-environmental understanding of the teacher/ student/researcher and democratic in the sense that both teachers and students work together to develop knowledge and experience to understand diverse perspectives outside the learning spaces. This is not an easy task and has implications for teacher education and curricular policy in order to increase students' abilities to understand and solve socio-environmental problems rather than focus on the amount of didactic environmental knowledge they have gained (Misiasek, 2014).

Table 3.2.3 shows the suggestion of Tilbury (2004) of five core pedagogical principles for ESD that can be used to prompt innovations in existing curricula and to inform the development of institutional strategies. This table provides a list of learning approaches with their possibilities for ESD which have been discussed earlier in this section.

**Table: 3.2.3** Five essential pedagogical principles for ESD

<b>Five essential pedagogical principles for ESD</b>	
<b>Future thinking</b>	Future thinking engages people in imagining preferred visions for the future. It involves the exploitation of assumptions and of meaningful understandings and interpretations of sustainable development. This process of envisioning futures leads people to take ownership and responsibility for more sustainable future.
<b>Critical and creative thinking</b>	Critical and creative thinking enables people to explore new ways of thinking and acting, make informed decisions, and create alternatives to present choices. It involves reflecting on how people interrelate with one other, understanding cultural differences and creating alternative ways to live together.
<b>Participation and participatory learning</b>	The engagement of people is needed to build sustainable futures collectively. Engaging diverse stakeholders and communities is essential, as they value and include differing knowledge systems and perspectives. The process of participation is also important for creating ownership and empowerment.
<b>Systematic thinking</b>	Thinking systematically is essential to sustainable development, as piecemeal approaches have proved not to work- instead resolving one issue while creating other problems. Sustainable development requires approaches which go beyond analysis in terms of 'problem solving' and/or 'cause-effect'.
<b>Partnerships</b>	Partnerships are a motivating force towards change. They empower people and groups to take actions, to take part in decision-making processes and to build capacity for sustainable development. Intellectual and multi-sectoral partnerships in particular are often highlighted as critical in ESD approaches.

Source: (Tilbury, 2004)

Having considered all these strategies, the role of content and knowledge which is commonly compartmentalised in distinct disciplines cannot be ignored. However, the principal idea of

ESD is the conception of the interrelationship between social, economic and natural systems are now co-evolving, and supporting an interdisciplinary approach. Dale (2001) supports the same idea by describing that learning for ESD its study must be grounded in complex adaptive systems, which is in itself an interdisciplinary tool. This means that sustainable development literacy requires understanding of complex systems, an interdisciplinary approach to its theory and a trans-disciplinary approach to its practical implementation.

### **3.2.5.2 Complex adaptive system and learning for sustainable development**

A complex adaptive system (CAS) is a dynamic system which is capable to adapt in, and evolve with, a changing environment. It is a system in which a concept to be examined is closely linked with all other related systems. Within such a context, change needs to be seen in terms of co-evolution with all other related systems, rather than adaptation to a separate and distinct environment. In general this theory is composed of interconnected components and its focus is grounding in interdisciplinary research and processes and its applied research methods (Dale 2005). This means that the focus of sustainable development education on the interaction between social and ecological systems requires a much deeper understanding of both complexity and interdisciplinary thought. This paradigm leads to new ways of learning, teaching and pedagogy based upon interconnectedness that should both create and support space for sustainable thinking, values, practices and behaviour (Vanderburg, 2000, p. 144).

Bourn (2016) believes that if global learning and ESD is to be recognised as a pedagogical approach rather than just a series of themes or topics within a subject, then it needs to be reflected across all aspects of the curriculum and become part of the ethos of the school. Indeed, sustainable development education alone does not contain the conceptual tools to reconcile complex problems. Its concepts depend heavily on other disciplines, in particular environmental, economic, social and ecological sciences. These all affect each other, therefore, rather than a conceptual tool, sustainable development acts as a point of unification, building the conceptual capacity to work through an interdisciplinary approach. Dale (2005) supports the same idea by stating that sustainable development literacy requires understanding of complex systems, an interdisciplinary approach to its theory and a trans-disciplinary approach to its practical implementation.

Warburton (2003) argues that teachers must provide a wide range of conceptual and material content, illustrate interconnections and interdependence, and stress dynamic rather than fixed structure and processes. Therefore, the exposure of critical thinking skills and problem-based

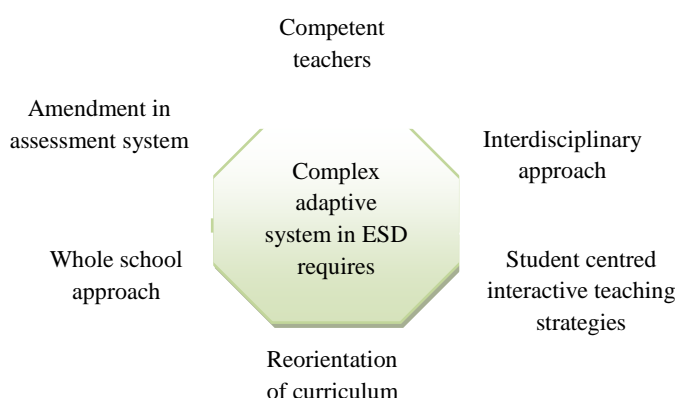
applied learning to students help them to develop this understanding. In this way they struggle to use their knowledge and skills in the novel ways they will need in their further involvement with sustainable development issues.

However, it is evident through the literature that a trans-disciplinary or interdisciplinary approach for ESD is the most favoured approach for achieving the objectives of ESD. Mainly these approaches reflect a shift away from didactic learning of discipline-specific content to constructivist learning enhanced by interdisciplinary and interactive approach. Obviously in practice to adopt all these teaching and learning approaches through interactive pedagogies would be very challenging for teachers. It could be argued that all these pedagogical theories and strategies are characterized by high level of learner engagement. These approaches demand (as shown in fig. 3.2.2) a skill level of the teacher to educate the most with least resources and limited time. Consistent with these philosophies, pedagogical theories associated with ESD emphasize on altering *how we teach* and *what we teach*. These concerns refer to development of knowledge which is mainly related to the framing of curriculum and role of teacher for modelling ESD in classrooms.

This is not impossible to adopt as the examples of several countries as discussed above where the strategies suggested for ESD are getting into practice. However, in practice, interdisciplinary learning does not come easily to a system which is rooted in traditional disciplines where school curricula are organized into subjects that are defined by existing literacies and prioritised by policy makers with a traditional assessment system based on memorisation of the text. In such a system which commonly exists in interdisciplinary activities tend to be seen as secondary to discipline-based approaches (Warburton, 2003). Therefore, this is only possible if the whole system is ready to adopt it.

According to McKeown (2002) every teacher in every discipline has some existing expertise or strength to bring ESD in their practices. However, use of this “strength model” requires that teachers be sufficiently well versed in the principles of ESD to pull together the pieces taught in the various disciplines to form a complete picture of the role of individuals, communities and nations in a sustainable world. This means that complex adaptive system requires a whole system change and skilled teachers who can establish connection between all the disciplines in a coherent way. Warburton (2003) argues that, to achieve these goals, teachers must provide a wide range of conceptual and material content, illustrate interconnections and interdependence, and stress dynamic rather than fixed structures and

processes. Within school education, the embedding of complex combinations of interdisciplinary knowledge, understanding, skills, values and dispositions into the curriculum is an important research focus and established challenge. In many countries, the efforts for meeting this challenge can be seen. For example, North American, European and Australian education systems have been concerned with developing strategies to integrate complex themes such as multiculturalism into education since the 1960s. More recently, in Scotland, Wales and Australia, cross-cutting themes (Education Scotland, 2016; Welsh Assembly Government, 2008) or cross curriculum priorities (Australian Curriculum, Assessment and Reporting Authority [ACARA], 2016), which are intended to infuse all areas of the curriculum, aim to develop a set of key attributes for active and informed citizenship. The Scottish curriculum (Education Scotland, 2016) identifies learning for sustainability, enterprise education and global citizenship as cross curriculum priorities; the Welsh curriculum (Welsh Assembly Government, 2008) recognises consumption and waste, choices and decisions, health, identity and culture, climate change, wealth and poverty, and the natural environment; and the Australian curriculum, K-10 (ACARA, 2016) focuses on sustainability issues. These examples are showing the efforts mostly at the policy level and obviously require several other elements for successful implementation. In this regard Fig 3.2.2 shows the elements required for the complex adaptive system to enhance the learning for sustainability. It includes reorientation of curriculum for interdisciplinary and student centred approach of teaching, competent and well trained teachers and an amendment in traditional discipline based assessment system.



**Fig: 3.2.2: Requirements for Complex Adaptive System in ESD**

### **3.2.6 Redesigning curriculum for ESD**

The curriculum is proved to be the main source of knowledge in formal educational system. The term ‘curriculum’ is understood to mean everything that is planned for children and

young people throughout their education, not just what happens in the classroom. It can transform the course and objective of education. For example Curriculum for Excellence in Scotland is designed to achieve a transformation in education in Scotland by providing a coherent, more flexible and enriched curriculum from 3 to 18 (Education Scotland, 2014).

The curriculum is comprised of different disciplines and the fundamental philosophical differences shape the 'subjects' in curriculum. The question arises here to how discipline-specific content be altered to align with ESD? Two major streams of thought emerge in the literature, the first one is to create a sustainability lens without altering the traditional content, while the second is to infuse SD throughout the curriculum, to reframe content entirely to support SD. McKeown (2006) supports the former idea by recommending the creation of a lens through which all course topics can be perceived, a lens of citizenship and stewardship. Nevertheless this philosophy depends more on teaching pedagogies for better understanding than on course content.

According to a document by UNESCO entitled "ESD Lens", Education for Sustainable Development is based upon an integrated set of key principles related to social equity, economic vitality, cultural diversity and environmental integrity. These principles provide the basic understandings needed to make decisions about complex sustainable development issues. In coming to such decisions, students draw upon, and integrate, concepts from a wide range of disciplines – ecology, geology and geography; economics, finance and law; history, cultural studies, sociology and the arts, etc. This cross-curricular focus of Education for Sustainable Development means that learning in all subjects needs to advance student understanding of sustainable development principles and concepts as relevant to each subject area in the curriculum. It is evident that ESD works beyond the disciplinary scale at whole-school, educational system, and international scales.

Calder and Clugston (2003) believe that the strategy of creating a lens for ESD in the curriculum is as far more ambitious and describes a curriculum redesigned for breadth, in which subject matter is used as a channel to reach sustainability. This approach is not a case of adding more content, but reframing of curriculum for sustainability. The interrelationship among social, environmental and economic perspectives on local and global levels must be embedded in the subject matter which is central to this strategy (Filho, 2009; Jukler, 2004; Stables & Scott, 2002).

However, it is also believed that interdisciplinary learning does not come easily to those rooted in traditional disciplines. There is a tendency for practitioners to retreat back to a single discipline, thus failing to capture the holistic nature of problems and their solutions. Interdisciplinary activities tend to be seen as secondary to discipline-based approaches (Warburton, 2003). Several studies have connected this to difficulties associated with interdisciplinary teaching, including teacher training approaches and subject-specific timetables (Aikins, 2016).

Some researchers believe that, although research literature and the documents of international agencies support the multidisciplinary approach for sustainable development concepts in the curriculum, there are different cultural and disciplinary traditions, often with no logical link between them. The implications of a decision to transform entire curricula are vast and challenging. Andy Stables (2012) argues there is no obvious link between learning about production of chemical pollutions in urban areas, and learning about the tendency in art and culture to ascribe human emotions and sympathies to nature. These are two distinctive approaches to understand the human-environment relationship. For example science will argue that its models of the working of the natural world are getting nearer to some kind of truth about reality, while social science will emphasize the relationship of social and environmental conditions (Sterling, 2003). Another strong reason to focus on subject matter only is that the teachers are nurtured through subjects and disciplines at school and in higher education and it is what they know, do and profess. Another aspect of this approach is revealed through a study showing that, when teachers across the country were asked about the ESD infusion in different subjects, the results demonstrated that no subject teacher took ownership for ESD (Gorana, 2016).

Another preferred approach discussed in literature is infusing ESD concepts and information into existing curricula without disturbing their existing concepts and information packages. Pigozzi (2007, p.30) states that “we do not need a subject called ‘sustainable development’ in the curriculum, but to reflect the interaction of numerous actions in many different spheres, so the ideas, issues, topics and problems related to Sustainable Development should be integrated into all aspects of learning, hence, calling for a *whole institutions* approach to Education for Sustainable Development”. Relating to this, the literature advocates the development of various types of literacy related to sustainable development, such as cultural literacy (Everett, 2008), eco-literacy (Haigh, 2008; Jucker, 2002; Wright, 2002) as well as political, social and historical literacy (Jucker, 2002), urban ecology (Calder & Clugston,



2003) and a traditional ecological knowledge (Sipos et al., 2008). In other words, the mechanism of sustainability impacts related to subject matter must also become a part of curriculum. Infusion of ESD in distinct disciplines is very effective and challenging at the same time for learners, teachers and policy makers.

Varied examples can be observed in the world on how the curriculum in formal schooling is adopting and integrating ESD themes into curricula. Some countries have begun to “green” their curricula by incorporating environmental principals, problems and solutions into their disciplines by emphasizing on the use of local resources in teaching and learning processes (Bhandari, 2000). While some countries could not take it up to the desired level for example, the researchers such as Puk and Behm (2003) have documented the failure of the infusion model of sustainability education in the curriculum through a survey research with over 200 high schools in Canada where the provincial education ministry opted to infuse the elements of ecological education throughout the sciences by removing a stand-alone Environmental Science course. In their analysis of data they found that it seemed as a policy failure because very little time and content was allotted for ecological education. In another case study of Australian research, Kennelly (2011) noted that curricular content designated as sustainability-related often included no explicit reference to sustainability, across subjects such as English, Math, History, and Science. Lee (1997) reported a similar result in Hong Kong, also citing lack of resources and professional development opportunities for teachers as factors in the lack of uptake.

In a contrast, as exception to the prior examples, an analysis of ESD policy implementation in the Icelandic curriculum, Finnish curriculum and Scottish curriculum demonstrated widespread incorporation of sustainability concepts across subjects (Jóhannesson et al. 2011). The seven cross-cutting themes for ESD penetrate all formal subjects in school curriculum at primary and secondary levels. These themes include development education, cultural identity, internationalism, responsibility for nature and sustainable development (Finnish National Commission on Sustainable Development, 2006). These themes help to define the operational culture of schools and include cultural identity, participatory citizenship, responsibility for the environment, sustainable development and media skills (Houtsonen, 2005 p 15). Jóhannesson et al. (2011, p. 375) suggested that the Icelandic approach to sustainability infusion effectively “provided a space for teachers and schools to deal with issues of sustainable development”.

Therefore, by supporting teacher's interests and skills within their disciplines, teachers can explore the sustainability issues with some professional confidence. Similarly, subject matter must emphasize multiple perspectives, relying less on a prescribed set of information to disseminate uniformly to learners and more on the use of various perspectives of learner themselves (Brooks & Brooks, 1999). Along with school curriculum, an appropriate approach for introducing ESD is required in discipline based initial teacher education system. Therefore at the student level there has been no strong focus on ESD as it has been taught in a completely fragmented way in isolated and unconnected project based activities in different subjects (Gorana, 2016).

Similarly, subject matter must emphasize multiple perspectives, relying less on a prescribed set of information to disseminate uniformly to learners and more on the use of various perspectives of learner themselves (Brooks & Brooks, 1999). Therefore, along with school curriculum an appropriate approach for introducing ESD is required in discipline based initial teacher education system.

### **3.2.7 ESD in Teacher Education**

It is largely believed that learning outcomes for ESD emphasize *process* as much as facts-based learning, the *how* is as much important as the *what* (Dale & Newman, 2005). Teacher education is an effective tool to deal with *how* factor in the learning process of the ESD. Initial teacher education curriculum is driven by government and university level policies and directives, teacher educator interests and teaching approaches, as well as student teachers' personal histories, experiences and interests (Stevenson, 2017).

UNESCO has outlined the critical role that teacher training programs can play in developing values, knowledge and skills to promote ESD in their schools as:

“Institutions of teacher education fulfil vital roles in the global education community; they have potential to bring changes within educational systems that will shape the knowledge and skills of future generations. Often, education is described as great hope for creating more sustainable future; teacher education institutions serve as key change agents in transforming education and society, so such a future is possible” (UNESCO, 2014 p. 11).

Hopkins and McKeown (2002) emphasize teacher preparation, pre-service and in-service as critical to the implementation of Education for Sustainable Development. Teacher education thus recognised as a key strategy in achieving the objectives of ESD. The UNESCO (2005)

*Guidelines and recommendations for reorienting teacher education to address sustainability* suggest the mainstreaming of sustainability in teacher education. These guidelines address the need to work across the teacher education system by engaging with ministries of education, boards of teacher certification, text book writers and publishers, professional organisations, non-Government organizations (NGOs), and teacher union. The overall UNESCO (2010) recommended the following strategies for teacher education for ESD:

- Reorient curriculum and teacher education programs to integrate ESD into both pre-service and in-service programmes.
- Support teacher education institutions, teachers and professors to network, develop, and research sound pedagogical practice.

The development of a range of teaching skills can be considered to enhance the practice ESD in classrooms such as observational skills and critical thinking at local, regional and global level. The skills associated with ESD, include collaboration and cooperation, conflict resolution, creative, imaginative, real-world problem-solving and the ability to identify and adapt to change (Dale & Newman, 2005; Filho et al., 2009; Herremans & Reid, 2002; UNESCO, 2005). Some of the most common strategies for the development of these skills include collaborative activities (Schlottman, 2008; Warburton, 2003), democratic dialogue, multigenerational analysis (Haigh, 2008), problem based assignments, role play (Colucci-Gray,2006), modelling thought processes, offering multiple perspectives on topics and scenario building ((Dale & Newman, 2005).Vargas (2000) also highlights the need to equip teachers themselves with critical literacy before they can impart these skills to students.

Despite increasing demands and expectations to embed ESD into teacher education, it is widely recognised that initial teacher education has not been used to its full potential (Fien and Tilbury, 1996; UNITWIN and UNESCO, 2000). Several researchers (such as Wals, 2009; Esa, 2010; Ferreira, 2009; Jenkins, 1999/2000) being most critical of a lack of progress in the process of infusing ESD agenda in teacher education programmes. They argued that the extent to which ESD has been integrated into initial teacher education is unclear and expected outcomes of demands and efforts of ESD in teacher education are not satisfactory.

It is evident that recommendations given by UNESCO for mainstreaming ESD in teacher education are useful, although their full implementation does not seem to be easy especially in the developing countries struggling for basic facilities for education. According to a

UNESCO report (2016, p. 59) nearly one-third of 36 European countries have programmes to help teachers developing professional skills and knowledge for development of ESD. This means that the mainstreaming of ESD across the initial teacher education is still limited. Mainstreaming here refers to the incorporation of ESD philosophy, content and activities into the curriculum and implies a wide-scale reorientation of the whole initial teacher education systems towards sustainability. A review of the literature, however, reveals an increasing number of publications addressing ESD in initial teacher education, which indicates that research on the issue, at least, is being undertaken. In this context, Stevenson (2017) argues that, without an accurate assessment of what is being reported, it is difficult to describe the state of play in the field. Such efforts should be informed by a thorough and grounded understanding of the foundations on which ESD in initial teacher education is being applied.

It is suggested that institutions of teacher education need to reorient pre-service teacher education to address ESD as it is considered to be a key element towards achieving goals of ESD. It is also believed that the development of new professionals with ESD expertise will surely shorten the response time for achieving sustainability. It seems quite challenging but to equip initial teacher education programmes with ESD is very important because the recommended teaching strategies for ESD revolve around the teacher and it demands a different role to be played by the teacher.

### **3.2.8 Role of teachers in promoting ESD**

Teachers play an important role in achieving the goals for ESD in schools. It is widely accepted in the literature that implementing ESD will remain impossible without commitment by teachers to the new paradigm. Stevenson (2007, p. 11) believes that, even if environmental education or ESD become more prominently featured in educational policies – irrespective of the particular policy agenda or perspective or the compliance and accountability mechanisms that are adopted – the history of school reform indicates that teachers selectively respond to and adapt policies or reform proposals based on their interpretations of and perspectives on what they mean for their own practice in their particular circumstances.

The United Nations Decade for Sustainable Development challenges teachers to implement Sustainable Development practices and philosophies in their classrooms as well as calling for curriculum renewal (Hart, 2003). Wright (2004) states: “teaching about sustainable development is to blend passion with process”. The literature supports the idea that there

must be consistency between teaching and practice in the classrooms. According to Higgs and McMillan (2006), when students observe their teachers engaging in certain actions, students are most likely to adopt them. Teachers should be the living model for sustainable development practice so ESD educators must practice what they preach, encouraging and values development by example (Jucker 2002; Jucker, 2004; Kevany, 2007; Mulder, 2009; Wals & Jickling, 2002; Welsh & Murray, 2003).

Most importantly, teachers' practices in classrooms should promote values in education. Every society has its own values. Hartsell (2006) defines a value as a "personal belief that an individual or society considers to be worthwhile" and morals as "the particular code of conduct used to demonstrate that belief." Teachers can help students in promoting values by teaching them how to understand themselves and others and their links with the wider natural and social environment. This understanding serves as a durable basis for building respect, along with a sense of justice, responsibility, exploration and dialogue. The link between Education for Sustainable Development and values education has also been emphasized by UNESCO (2007, p. 11). ESD is fundamentally about values, with respect at the centre: respect for others, including those of present and future generations, for difference and diversity, for the environment, for the resources of the planet we inhabit.

Moreover, for practicing ESD strategies in classrooms, quality education and a better learning environment proves to be a good support. Scott (2009) suggests that the effectiveness of ESD can only be measured by what learners learn, rather than what they evidence partisan support for. Therefore, the literature reflecting certain key competencies in teachers for practicing ESD in classrooms is discussed in next section.

### **3.2.9 Key competencies in teachers for ESD programme development**

The emerging field of sustainable development education has been engaged in a rich and converging debate to define what key competencies are considered critical for teachers and students to possess. These over-arching competencies are generally conceptualized as "having the skills and knowledge to enact changes in economic, ecological and social behaviour without such changes always being merely a reaction to pre-existing problems" (de Hann, 2006, p. 31). There are variety of research and teaching approaches for ESD that are problem-driven and solution-oriented (Kates et al. 2001; Clark & Dickson 2003; Swart et al. 2004; Komiyama and Takeuchi 2006; Grunwald 2007; Robinson 2008; Turner & Robbins 2008; Sarewitz & Kriebel 2010).

The transformative role of education is a key issue in ESD because to envision a transformation will create new solutions and new ideas. Reflecting this, ESD needs an innovative and more constructive focus on teaching. Therefore, teachers could gain needed insight through constructivism. For example, in terms of communication, this competence needs to promote more of a balanced dialogue between teachers and students and between students and students themselves (Malik, 2013). This leads to the significance of the questions of whether and how they may be acquired via learning programs (Weinert, 2001).

Reflecting on Vygotsky's philosophy of constructivism, the literature also indicates that the ESD teacher/educator is a facilitator and collaborator by allowing learners to direct their own learning in their supervision. For example, a constructivist teacher may present one major question, expose learners to a collection of resources to help them answer it, then allow time for learners to explore what they think, share their propositions with others, and allow their hypotheses to be criticized (Brooks & Brooks, 1999; Hodson & Hodson, 1998).

The literature review supports the idea that successful teaching needs an approach to enhance enthusiasm and, positive attitude of teachers to move ahead with the agenda of ESD. Three key strategies can be identified after reviewing the literature for a successful role of teacher in ESD:

- (a) action competence,
- (b) modelling sustainable practices and the
- (c) promotion of values in education.

A number of researchers have considered action competence as an effective method in teaching students about sustainable development (Jensen and Schnack, 1997; Barrett, 2006; Lundegard and Wickman, 2007). Action implies a set of intentional behaviours and competence implies being ready, willing, and able to inspire change (Jensen & Schnack, 1997). Action competence reflects upon teacher's role as a facilitator, encouraging students to develop their desires and skills to take positive action for the promotion of sustainable development ideas. Action competence of teachers leads students towards critical thinking and decision making. According to Lundegard and Wickman (2007) students need to choose what elements of sustainability are important for their lives now and in future. It also reflects the role of a teacher from a constructivist point of view. For example, a constructivist teacher may present one major question, expose learners to a collection of resources to help them

answer it, then allow time for learners to explore what they think, share their propositions with others, and allow their hypotheses to be criticized (Brooks & Brooks, 1999; Hodson & Hodson, 1998).

There is a distinct connection between competency concepts, educational framework conditions, training of teachers and shaping of learning processes. The conceptions of collective competencies are more relevant with the demands of ESD. McKeown (2002) believes that the different and various competencies and strengths of teachers and disciplines should contribute to ESD. Selures (2008) identifies five competencies domains for effective teaching of ESD. This model suggests the following domains for competence in ESD for teachers:

**Knowledge:** the specific features of knowledge for ESD which includes, conceptual, factual and action related knowledge. Knowledge has to relate to time (past- present-future) as well as space (local-global) and cross-disciplinary constructed.

**System thinking:** following the complex adaptive system theory, the complexity and interconnectedness of today's world asks for thinking in systems. Different kinds of systems are addressed in ESD: biological, geographical, ecological, political, economic, sociological, psychological and including interrelationships in time and in space.

**Emotions:** feeling inter-connectedness with the world is basic for intrinsic motivation in ESD. Thinking, reflecting, valuing, taking decisions and acting are linked with emotions. Emotional competence is therefore vital for ESD-commitment and process.

**Ethics and values:** Norms, values and ethics guide our perceptions, actions and decisions. The main guiding principles of ESD is equity (social, intergenerational, gender, communities) and equality between man and nature is which is elaborated in the "Earth charter" ([www.earthcharter.org](http://www.earthcharter.org)), officially recommended for ESD by the UNESCO with a declaration of fundamental ethical principles for building a just, sustainable, and peaceful global society for the 21st century.

**Action:** Action is the process, where all the competencies of the other four domains merge to meaningful creations, participation and networking in ESD. It needs additional special practical skills, abilities and competencies in the field of project management and cooperation. Actions allow to experience conflicting interests, change, to be involved (participation), learning from mistakes, failures and success. All of these can increase motivation for further learning and continuing action if they are chosen wisely. Actions allow applying the solidarity developed through empathy and compassion.

Rost (2004) articulates the same kind of competencies in “Competencies for global learning,” suggesting five approaches, such as a system-oriented approach to foster the student’s ability, and taking different value systems into account and developing the ability to recognise, understand and compare different values. According to Rost, ‘action’ is the most important area of competence which deals with developmental processes, involving the ability to predict, to set relevant goals and finally to shape processes of change. For each of these five domains suggested by Rost (2004) teachers can develop competencies by performing their role on three different levels:

- The teacher as an individual – connected with reflection and visioning
- The teacher in the educational institution – connected with teaching and communication
- The teacher in the society – connected with cooperation and networking.

Reflecting on all these competencies for teachers drawn from the literature recommends a change in behaviour and teaching approaches for ESD, the redesigning of existing curriculum and a set of teaching methods or pedagogies focusing on key elements and principles of ESD. According to Armstrong (2011) all these pedagogical principles lead towards innovative strategies employed by teachers in the classrooms. Beyond these classroom practices, ESD is considered to be a whole school approach where the role of head teacher cannot be ignored to point out (UNESCO, 2005).

### **3.2.10 Role of Head teacher in ESD as a whole school approach**

The effectiveness of a role of head teacher as a leader is validated through a huge body of literature. He or she is the pivot around which all the activities of the school revolve. Therefore, all the success and failures done in the schools are attributed to head teachers. Moreover, in a centralised education system head teachers make the bridge between the bureaucracy of education department and the other staff of the school. Nevertheless the competent leadership is the core of initiation, implementation and institutionalization of all the efforts.

On considering the leadership competencies especially for ESD, Fullan (2001, p. 1038) identifies five core competencies for head teachers: (a) motivation that shapes the duties, (b) understanding change and a working knowledge of current researches and understanding of how to use it to improve the school, (c) a commitment to share and develop new knowledge effectively, (d) ability to develop high levels of trust and cooperation among individuals and



teams, (e) establishing the school as a social agent to promote collaboration with the community for achieving common visions and objectives. Kdji et al. (2013, p. 305) argues that, beyond these competencies in leadership styles for a 'sustainable school', there must be distinct additional leadership characteristics to embrace sustainable development by supporting:

- a) democratic and participatory decision-making processes e.g. student participation in decision-making about running the school in a sustainable way;
- b) partnerships with parents and community organisations and agencies (especially those with resources and expertise in sustainability practices;
- c) cross-curriculum integration, reducing the school's ecological footprint and managing the school grounds for biodiversity of native species through environmentally appropriate practices;
- d) assisting teachers to develop the deep knowledge, skills and dispositions that ESD pedagogy demands;
- e) promoting practices and measures that will facilitate the school's orientation towards ESD; for a sustainable future.

It can be argued that the complex challenges of implementing ESD are to make the role of the head teacher even more important for developing the substantial individual and organisational capacity necessary for success. A study conducted by National College of School Leadership (NCSL, 2007) explored the distinctive characteristics of sustainable school leaders, concluding among other things that they are optimistic and outward looking' and 'conscious of the place of the school in the local and global community, fostering participation in decision making, an outward orientation looking beyond the school premises and an optimistic world view. Many of the case study schools have considerable community and international components to their activities. These leaders have an integrated, systemic understanding of the world and their place in it and can communicate this to others. They understand the interconnectedness of society, the environment and individuals within these contexts.

These explored qualities among head teachers demonstrate that rather than take on the role of all-powerful, heroic or charismatic leader (which is unsustainable on a personal level as well as helping to reinforce the narrative of power and control), they can focus on the three functions of leading sustainably: distributing responsibility so that teachers and learners can explore, challenge and enquire; creating conditions that empower rather than control; and

enabling children to flourish as capable, inquisitive, connected, compassionate decision-makers. Carr (2016) believes that in schools where this is happening, education as sustainability can flourish. However, this is happening in spite of, not because of, the policy and practice contexts of our education system. This means that, irrespective of how a policy is documented, the success of ESD relies on the enthusiasm of a head teacher.

A question arises here as to how a head teacher in school can acquire all these competencies and qualities for ESD while working in a pressure of several stakeholders. The leadership challenges, both within schools and within their larger administrative communities, are dominant in moving toward a more systemic approach to ESD in schools for a greater impact. The literature also reveals that a majority of head teachers are currently disempowered by prevalent control of state-level policy on curriculum and the standards agenda (Stevenson, 2013). Until sustainability is not a part of the national curriculum this will continue. This trend is also reflected in a report (Jackson, 2007) which shows that there is a lack of priority for sustainable development within many local government authorities and a consequent lack of institutional support for implementation of ESD in schools. The same study notes that those leaders who develop sustainability within their schools are motivated by a personal passion for sustainability. In another study conducted in Cyprus, Zachariou (2013) explored head teachers' perceptions and understanding of sustainable schools. The results show: (a) lack of knowledge and understanding of ESD and how to implement it in their schools; (b) lack of confidence in their own and/or their school's capacity to implement ESD and (c) limited commitment to the goals of ESD, especially in the context of mixed policy messages about the priority of ESD in relation to other educational priorities (e.g. a focus on literacy and numeracy).

Regarding this, Zachariou and Kadji (2009) argue that it is critical that most of the governments are lacking in harness the energy and commitment of individual leaders, communities and NGOs who support the whole-school approach to a more systemic implementation of ESD for a greater impact. Hursh, (2010) believes that enhanced leadership could create the governance structure necessary to ensure the longevity and sustainability of ESD. It is also argued that a good deal of motivation and awareness for ESD in a head teacher is insufficient if it is not a part of curriculum and standard agenda set by policy makers. It also depends on the ways in which school leaders understand sustainability and the implications of this for leadership. Therefore, it is clear that ESD requires rethinking the purpose of education.

It is evident that a competent head teacher plays his/her role in creation of a 'supportive environment in which one can find and speak his or her own voice' and includes communicating trust, encouraging risk taking, honouring teachers' opinions and developing teams (Reitzug 1994, p. 290). The role of head teachers in facilitation is viewed by Kadji (2013) as more proactive than one of support, as stimulating critique by asking questions, requiring justification of practice based on personal practical knowledge and providing alternative frameworks for thinking about teaching and learning through staff development opportunities, readings and discussion of ideas.

The above discussion shows that a journey towards ESD requires a changed role of teachers and head teachers equipped with certain competencies. Practically, this is not so easy as it requires a change in the whole system with many challenges that are discussed in the following section.

### **3.2.11 Challenges for practicing ESD in classrooms by teachers**

The literature review and discussion in the previous sections revealed that principles which frame the sustainability discourse need to be translated in to curriculum and pedagogy. All the above mentioned pedagogies to support the ESD in classrooms are only possible if the teachers and whole learning environment is ready to adopt these innovations. Many studies have identified several factors and constraints responsible for implementing ESD in classrooms. These challenges are present from policy making level to class teacher level. The first challenge is the incorporation of 'the fundamental ideas and practical procedures into wider, pre-service and in-service teachers' professional learning. The second challenge is, if ESD is not a prominent part of any of school curricula, mostly teachers have difficulty fitting it in amongst the other demands on their time and content.

One of the challenges of teaching today is identifying and teaching strands of sustainability already present in national, provincial/state or local/private primary or secondary curriculum (for example social, ecological and economic principals are commonly found in social studies and science subjects). Commonly these strands are not taught as part of sustainability by connecting them (as indicated in complex adaptive theory). This lack of connection arises due to the fact that, for the majority of the teachers, ESD is not the part of their initial teacher training and their professional development courses (McKeown, 2012).

Moreover another challenge reflecting from the literature is establishing the connection of the curriculum with real lives of the students by keeping in mind their social and traditional

demands. Due to lack in instructions in their teaching education programmes, it is a challenge for them to empower the learners to explore the challenges for sustainability of their communities and find the solutions. Varga et al. (2007) and Bore (2006) recognise that pre-service teachers are not necessarily used to student-centred and constructivist inquiry-based learning and teaching approaches and, hence, often encounter difficulties using such processes and tend to resist such methods. Cheong (2005) argues that major constraints are related to limited teacher capability in group and project work and lack of knowledge and experience in ESD.

A major challenge is the tension inherent in a formal education sector which is centrally controlled, in which compulsory curriculum is determined by the political party of the moment, in which quality of teaching and learning is externally enforced through a bureaucratic and punitive inspection regime and which is based on a 'banking' model as described by Freire (1970) whereby 'experts' deposit knowledge into children's minds like blank pages. Moreover, in a centralised system of education, to facilitate unstructured projects is very challenging for the teachers as their teaching process is strictly bound with a structured process of assessment and traditional views of teaching and learning. Hart (2003) describes that a main obstacle for implementing Education for Sustainable Development is not finding relevant resources; rather it is in the planning, starting, and facilitating of unstructured projects in the classroom. Another perceived challenge for teachers is their workload within a limited time period. Summers (2003) wonders if teachers have the time within the school year (if their workload is taken into consideration) to enjoy new ideas. In this era of accountability, teacher's workload has intensified (Alopse et al., 2007).

Time constraint for practicing ESD in classroom is also recognised as a major issue because the pedagogy associated with ESD learning demands flexibility in time table. The process of learning supported by the constructivist approach takes time, more time than traditional didactic methods (Brooks & Brooks, 1999; Millar, 1989). Dearing (1999) believes that strong components of fieldwork, practical work will achieve the objective of teaching and learning for sustainable development. However, this can only take place effectively where a constructivist education system is in operation and curriculum is parcelled up in such a way that a learner-centred approach is possible (Dearing, 1999). Hartsell (2006) supports this idea by describing that a typical curricular consists of concepts of sustainable development especially at elementary level the time constraints causes a hurried presentation without opportunity for students to take ownership of projects and to take actions.

Usually the curriculum designer, while formulating the content, keeps in mind the economic and market demands of the era. Stevenson (2007) believes that most of the governments and private sector tend to create situation for students to be prepared to enter a global knowledge-based society as workers. Maths, science, and literacy have taken this focus, paying less attention to arts and citizenship. The consequence is that the purpose of learning has been narrowed to allow only room for the processes and assessments which will seemingly determine student's life chances at economic success rather than inspiring students to become responsible, compassionate stewards of Earth. This insight does not suggest ignoring the subjects of economic and professional competencies, as the economic approach is a core of sustainable development, but rather, at the same time attention should be paid to citizenship and environmental issues by linking them to other content.

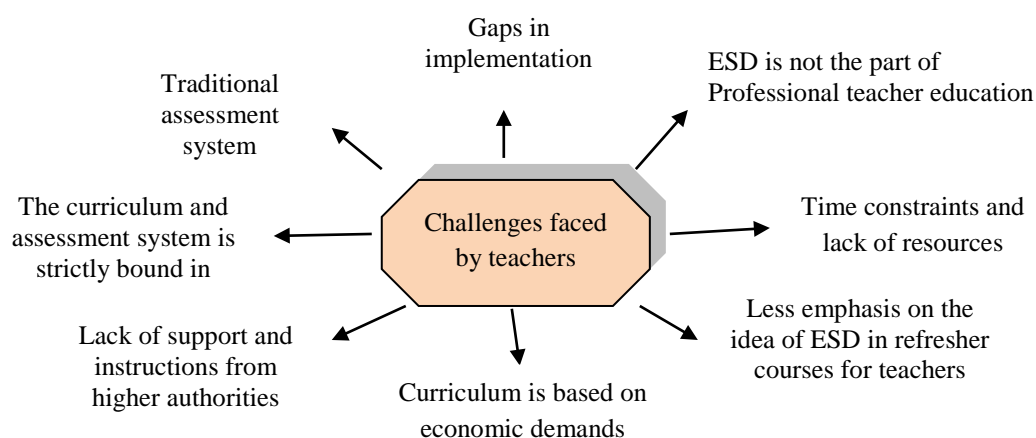
Another challenge, mostly faced by developing countries is availability of proper facilities for better learning. Piggolzi (2007) supports the same idea by stating that the learning environment should also be considered important to promote sustainable development practices. There must be adequate hygiene and sanitation facilities. School policies and their implementation must promote physical health, safety, and security. The practices such as gender discrimination, bullying, corporal punishment, and forced work should be eliminated.

Finally, the assessment system especially, in a centralised system of education is a real challenge for the application of constructivist approach. In this case, Armstrong (2011) suggests there should be weighting of grades in a manner that offers incentives for both applying the ESD-related skills during course work as well as the completion of course work itself. In this case, the learner would be required to demonstrate their *progress* made in qualitative terms and not only the product created. Still it requires a change in whole system of assessment.

The challenges and implications for implementation of ESD cannot be same throughout the world as it is very much dependent on cultural, economic and geographical context of any country. The empirical part of the present study explores how much these are in line with the situation in Pakistan. According to Khan (2010) in Pakistan huge gaps exist between the suggested goals for implementing ESD and what is actually happening in the classrooms.

ESD is an international agenda and it is implemented from international level to national level and then at local levels where the classroom activities involved. An overview of hierarchy of implantation of this agenda reveals the gaps within it. However, this situation is not unique to Pakistan; it exists in many countries around the world, especially in developing

regions (Lynch & Modgil, 1997). To overcome all above mentioned obstacles proper implementation is needed with the help of research, monitoring and involvement of teachers in curriculum planning.



**Fig 3.2.3 Challenges faced by teachers for practicing ESD**

### **3.2.12 Policy implementation for Education for Sustainable Development**

During the UN decade on Education for Sustainable Development a wide range of teaching and learning processes have been developed from policy making level to classroom level. Much of the progress in ESD has occurred at the policy implementation level, with many countries (Australia, Canada, China, England, Hungary, Jamaica, Netherlands, El Salvador, Scotland, Spain, Norway, Poland) including developing national strategies in education for sustainable development and some financial mechanisms to encourage implementation both in and out of formal schooling (Buckler and Creech, 2014).

Generally different elements involve in the process of implementation from policy formulation to administer in classrooms. Regarding policy, efforts for implementing ESD can be made at different educational levels. The partners considered by UNESCO (2005) in the DESD include all those organisations, networks, bodies and alliances that share the conviction that sustainable development depends to a large extent on broad-based awareness through educational and learning processes. As Table 3.9 shows, there are partners at all levels – sub-national (local, community) level, national, regional and international levels, and from all spheres – governmental, civil society and NGOs, and private. Ideally all these partners should link and work together in their capacities. Missing links from policy formulation at international level to policy implementation at local or school level hamper the desired objectives for ESD.

**Table 3.9: A sample list of potential partners in implementation of ESD**

Local/ regional	National	Regional	International
Provincial/state/ district departments of education and development sectors Municipal authorities. Schools, adult learning programmes. Community-based organizations. Local sections of NGOs Local business Clans and families	National government departments of education and development sectors universities and research institutes EFA network	Regional inter-governmental groupings regional EFA networks	Commission for SD UNDG member agencies. Official/semi-official watchdog bodies EFA High-Level and Working Groups Millennium Project Task Forces

Source: UNESCO (2005 p 3)

Take Scotland, for example, successive Scottish governments have committed to the DESD, developing and delivering increasingly ambitious action plans collaborating with a wide range of partners - from policy makers to educators. As a result, Scotland's new 'Curriculum for Excellence' has sustainable development and global citizenship spread across most subjects as well as being identified as an important cross-contextual theme. In 2009 the Scottish government commissioned a systematic review of every aspect of teacher education including teacher training, continuing professional development and leadership education. A comprehensive set of recommendations was published in 'Teaching Scotland's Future', some of which are currently being implemented. A review and subsequent revision of the Professional Standards for Scottish teachers were also initiated (Murray, 2012).

This can happen if the policy framework is supportive of such integration and is well co-ordinated in the way it is implemented and practised (Wade, 2008). The policy rhetoric consistently advocates a holistic and integrated approach to the implementation and practice of ESD in the formal education. However in some cases this approach is not addressing the issue in a holistic manner. In high-income countries, the success of sustainability education was variously linked to policy uptake by government, teacher training and enthusiasm, presence and availability of resources, and participation in initiatives such as the UN DESD.

However, in many national contexts, under-resourcing of public education, and therefore access to basic schooling, are ongoing challenges (González-Gaudiano 1999; Vare 1998).

Hargreaves (2008) points out this situation by describing that this approach is not commonly adopted with positive examples as it largely limited to pilot projects or model schools implemented under the auspices of non-governmental organisations (NGOs) or individual advocates of ESD, rather than in a systematic and coordinated manner.

The literature shows (Carnoy, 2000) that the gap between policy rhetoric and school practices in ESD has increased over the past twenty years as in recent years the agenda of Globalization and industrialization has affected the curriculum and culture of teaching. Most governments have focused on the role of schools in preparing workers to compete in this new global knowledge-based economy through centrally defined curricula; an emphasis on mathematics, science and technology; and an increased reliance on standard measures of student performance, including international comparisons, as indicators of the quality of education. As a consequence, the emphasis is on the core subjects of mathematics and science, whereas subjects related to creative arts and citizenship education are deemphasized or squeezed into small components of the school curriculum. Another factor which plays an important role in formulating the teaching practices is the assessment system and high stake assessments are being interpreted by many teachers as demanding basic skills (e.g. reading comprehension) rather than powerful or ambitious learning, and as pressuring them to do more traditional teaching in order to cover the material that might be tested (Grant et al., 2002).

In many countries, ESD is still being shaped by those outside the education community. The concepts and content of ESD in these cases are developed by ministries, such as those of environment and health, and then given to educators to deliver. Conceptual development independent of educator input is a problem recognized by international bodies as well as educators (Rosalyn, 2002). Another contributing factor which is perhaps increasing the gap between policy and practice is the absence of practitioners such as teachers in construction of policy and principles of ESD. For example a middle school teacher from Canada stated in relation to the British Columbia (Canada) Ministry of Education's document entitled 'Environmental Concepts in the Classroom: A Guide for Teachers' (1995) that: "From my experience, this discourse is extremely complex and problematic. There is so much potential ideology and subjective interpretations involved. The language is a huge problem for many people, and many cultural groups have been effectively excluded from participation in discussions and from having influence on environmental education" (Courtney-Hall & Lott, 1999, p. 94).



In the countries with centralised education system the national curriculum decides what is to be learnt and participation of community and students in the content is not encouraged. In such policy contexts, which emphasise standardisation and centralised curriculum control within traditional content areas, knowledge tends to be seen merely as a 'commodity for private financial gain rather than as a means for social change or intellectual and emotional development' (Shor, 1992 p. 72). Generally, the national curriculum is fragmented in different discipline system and in contrast, the discourse of ESD emphasize on holistic and interdisciplinary teaching and learning by engaging students in critical inquiries in the issues of environment and sustainability. It demands a complex system of teaching and learning as the curriculum and pedagogical practices conflict with the structure and schooling for ESD (Dillon & Teamy, 2002).

In response of all these challenges the advocates of ESD (such as Fien & Tilburt 2008, p. 14) state that international policy documents should be read contextually and strategically as well as textually to accelerate local innovation, educational reforms and resistance to unsustainable development practices. Stevenson (2007) recommends, after examining ESD policy and practice gap in school over the past twenty years, that the practices in schools are not only simply assessed in relation to policy discourse but policy discourse itself should be re-examined in relation to teachers' practical theories and the contexts shaping their practices. The principles that frame the sustainability discourse need to be translated into curricular and pedagogic practices to engage students intellectually and emotional in developing deep understanding by simple or easy tasks for teachers. It is obvious that teachers alone cannot meet this challenge, a network of assistance and support is needed that not only can build collective expertise and commitment to learning about the creation of sustainable communities and societies, but also signals to politicians, policy makers and public at large that schools should recapture their moral purpose of serving the people or common good (Stevenson, 2007, p. 12). In a result of above discussion of the facts and challenges for policy implementation, it can be suggested that all the academic developments from policy making to classroom practice for sustainability should be the responses to existing and anticipated complex problems of ESD (including climate change, desertification, poverty and peace.).

### **3.2.12.1 International efforts for the evolution of Education for Sustainable Development**

One major push for ESD has come from international political and economic forums (e.g., United Nations, Organization for Economic Co-operation and Development, Organization of American States). International organizations, including United Nations affiliates, the International Union for the Conservation of Nature, and the World Bank, were cited as organizational actors spurring on the uptake of sustainability in education policy (Bernon 1978; Pace 1997; Smyth 1999; Vare 1998).

United Nations General Assembly set up the World Commission on Environment and development (WCED) in 1987, headed by Dr. Brundtland, the prime minister of Norway at that time, to examine critically the environment and developmental progress on the planet and to ensure that human progress is sustained by development which does not deplete the environmental resources of future generations (Balgot, 1990). The Brundtland report is one such international effort that includes a component of education in pursuit of more sustainable development. More importantly the step for organizing United Nations Conference on Environment and Development (UNCED, 1992), popularly known as “Earth Summit” held at Rio-de-Janeiro in 1992 endorsed the concept of sustainable development. Agenda 21 was presented and adopted by 178 Governments.

Another remarkable international effort for ESD was the declaration of (2004-2015) as the Decade of Education for Sustainable Development (DESD). The overall goal of the initiative was to integrate principles, values and practices of sustainable development in to all aspects of education and learning. Moreover, encouragement of change in behaviour that would create a more sustainable future in terms of environmental integrity, economic viability, and a just society for present and future generations (UN, 2007).

At a global level, ESD is gradually gaining importance and UNESCO is playing an important role in many regions to implement the decades’ commitments. In Europe, the concept is widely accepted and has been a part of curricula at all levels of education while in developing countries ESD is not widely adopted, however the understanding is increasing rapidly and some countries have made individual efforts towards introducing ESD as an essential component of curricula. Several countries from Asia pacific and Africa are taking key initiatives to promote ESD (IUCN, 2007).

It is evident from the above discussion that although the agenda 21 was embraced by all the member countries of UN equally but the impacts of international efforts and commitments towards ESD cannot be seen at a same level. Keeping in view the focus of the study it would be appropriate to have an overview of the initiatives taken by Pakistan towards achieving the goals for ESD.

### **3.2.12.2 Initiatives taken in Pakistan for the Decade of sustainable Development Education**

Although Pakistan is not among the countries performing successfully in achieving ESD objectives, it has been taking initiatives to promote ESD. According to IUCN, Pakistan is actively taking key initiatives to promote ESD (IUCN, 2006). In late 1990's, the principles of EE began featuring in textbooks. Around the same time, environment was introduced as a cross-cutting theme as well as a standalone subject at Bachelor's and Master's levels (details are given in Chapter Two). Another remarkable effort towards the journey of ESD is inclusion of a separate course in M.Ed curriculum as a part of ITE.

A number of initiatives contributed to underpin efforts aimed at promoting the Decade of Education for sustainable Development (DESD) in Pakistan such as:

- Establishment of a whole-school, ESD oriented approach what we known as 'Green Schools.' Although this approach has been implemented in few private schools especially elite private schools. These schools are supervised and registered by WWF, awards and certificates are granted to schools that successfully demonstrate the ESD values and principles in their management, curriculum, and learning process.
- An ESD toolkit entitled *Taleem Barai Pyedar Taraqi* (Education for Sustainable Development) was prepared by IUCNP and UNESCO Islamabad for in-service teachers and trainers in 2005. This toolkit was originally developed and authored in English by Rosalyn Mckeown, it was translated into Urdu and adapted to the Pakistani context.
- The national Conference on ESD held on 2004 was another important event to promote ESD in Pakistan. This conference was a joint effort of IUCNP and UNESCO. The main thrusts of the conference was to discuss and establish ESD links with key sectors such as formal education, civil society, media, information and communication technologies and business.
- The immediate outcomes of the conference were the formation of the National Forum on Education for Sustainable Development and launch of an ESD manual in Urdu

entitled *Azsare nau Sochiyay Inkar Kijayay, Kum Kijjayay* [Rethink, Refuse, Reduce]. This training manual is an adaption of Rethink, Refuse and Reduce and originally authored by Webster and published in 2004 in United Kingdom. This book was designed for the need for teachers and trainers with highlighting the need for promotion of ESD and presents a critical analysis of current development, trends and unsustainable practices.

In 2005 Badin District Education Plan was formally launched by the provincial education Minister of the Government of Sindh with technical assistance from IUCNP (IUCN, 2005). The objective of this plan is to integrate ESD concerns at all levels of education. In this manner it is the first comprehensive local plan in Pakistan which promoted sustainable development perspectives in education system but in a very limited level. Pakistan formally recognized the importance of Environmental Education in its National Education Policy of 2009. The National education Policy (NEP) of a country provides the foundation upon which the system of its education rests. It is also reflection of aspiration and commitments of a nation for moving along the road to sustainable development. A cursory glance of National Education Policy 2009 is proved to be important to assess its responsiveness towards the global initiatives as embraced in the United Nation's declaration of 2005-2014 as the Decade for Education for sustainable development. This document fails to recognise the importance of ESD for meeting and initiating sustainable progress in the country. Describing Government initiatives (National education Policy, 2009 p.13), attention is given to quality education and focus on sustainable economic development in the global competitive milieu. However, aspect of environment is missing in education for economic development since all social and economic progress is unachievable without dissemination of EE for ESD.

Despite the reluctance to embrace the change in the formal education sector, Pakistan has demonstrated a radical ability to transform or to absorb change. The non-Governmental and civil society sectors have made some advances where the public sector has lagged. In some cases NGOs have entered into cooperation with formal education sector to fulfil the large teacher capacity building deficits such as WWF and DFID (WWF, 2001). NGO's and community based development organizations have shown some promise at succeeding in rural areas, where large top-down government programs have failed to reach, especially in northern areas of Pakistan. Pakistan does not yet have a formal national lead agency for ESD; however, efforts are under way to create a broad-based National ESD Forum tasked with the development of a national strategic framework for the implementation of the DESD

in Pakistan. The UNESCO and the International World Conservation Union (IUCN), together with the Ministries of Environment and Education had formed an informal but operational core group that had initiated the introduction and continuous promotion of ESD in Pakistan. The official national launching of DESD took place in Islamabad in September 2005. This was a joint effort of the core group and other UN agencies. Key stakeholders and partners-governmental, civil society organization, bilateral and multilateral donors, researchers and academics – were invited. Issues highlighted included: the importance of quality education in meeting the challenges of sustainable development in Pakistan; the need to “unlearn” those things that currently hinder sustainable development; the importance of locally relevant teaching and learning processes; and the need to build good partnerships to make ESD a reality (UNESCO, 2006).

It is obvious from the above discussion that all the initiatives and efforts took place for ESD in Pakistan are mostly initiated by non-governmental organizations (NGOs) and at some places with the collaboration of Government of Pakistan. Although all these efforts were addressing broad and ambitious agenda of DESD, the impacts of these initiatives seemed very limited due to lack of continuity and capacities required for the implementation and institutionalizations of ESD in Pakistan.

### **3.2.13 Conclusion**

The first part of this chapter presented the definitions and critiques of Sustainable Development reflected from literature. It showed that the concept of SD evolved from a wide range of interpretation and definitions which presented the contested nature of term Sustainable Development. The second part of this chapter discussed the concept of ESD. It presented the debate and the confusion about understanding of difference between environment education and ESD which caused the absence of an agreed definition for ESD and it also provides challenges for the implementation of ESD in education (UNESCO, 2009, p. 22). This debate mainly reflects the complexity and the dynamic nature of these concepts. ESD builds upon a progression of environmental and ecological literacy, though ESD heavily focuses on the interaction between social and ecological systems that requires a much deeper understanding of both complexity and interdisciplinary thought.

ESD requires a complementary understanding of elements of environmental literacy, but more generally requires understanding of interdisciplinary systems and requires the acquisition of process-based tools supported by complex adaptive system theory by keeping

less emphasis on traditional way of teaching and learning. ESD also requires certain key competencies through innovative teaching strategies and redesigning of curriculum. This collection of strategies for ESD provide multiple perspectives regarding the possibility of creating Education for Sustainable Development practices that are integrated into and relevant to the needs and the practices on global scale.

As key players in provision of education and policy development faculties of education have a fundamental stake in provision and promotion of ESD. Despite the increased presence of ESD in literature and initiatives by organizations like UN, ESD is still lacking a significant public awareness. One of main reasons responsible for this may be because of the concept of ESD is highly complex and requires a more definitive understanding and explanation that can be communicated to the public (Wright and Pullen, 2007, p.81).

In the light of all the discussion presented in this chapter it can be argued that the lack of success of ESD and other movements such as EE in many countries, is not due to lack of a clear definitions, but there is a hierarchy of far larger problems that were mainly overlooked by the policy makers at all levels. The greatest problem lies within the current paradigm in which education is embedded, a paradigm that promotes a mind-set with a confusion and disconnected view of all the stakeholders for development and environment. Implementation processes from international level to national level and the policies transfer to local or school level is also a challenge. In this context at the policy level Pakistan seems to follow and considering the dire need for ESD and outcomes can be revealed in the empirical part of this study.

## **CHAPTER FOUR**

### **Research Methodology**

#### **4.1 Introduction**

This chapter presents the research paradigm and methodology considered for achieving the aims of the study. As stated in Chapter One, the main purpose of the research is to identify the current practices for ESD within initial teacher education and in primary school education in Pakistan. In school education in Pakistan, the curriculum of Science and Social Studies supports environmental education and sustainable development aims but it is uncertain how far targets for experiential rather than instructional learning are met. This raises further questions such as how far the style adopted is compatible with the stated aims for sustainable development education and to what extent the guidelines suggested by national curriculum are adopted by teachers.

To gain further understanding relating to these questions, the practices, pedagogies and approaches being used by the teachers while covering environmental topics and the content related to the ESD has been identified through three main questions (see Chapter One). These questions generated a number of sub-questions which require a clearly defined research design and methodology to address them. Thus this chapter presents the theoretical underpinning for the research methodology and a framework of research design for the present study.

#### **4.2 Research paradigms**

Guba and Lincoln (1994) state that ‘paradigm’ refers to the worldviews or belief system that informs the investigation of educational phenomena. The use of the term ‘paradigm’ in this chapter refers to the philosophical framework used by the researcher with regard to the research. The selection of an appropriate philosophical framework leads towards the methodology and the methods used in this research with the discussion of the reasons for selecting a particular method. Methodology is a research strategy that translates the epistemological and ontological principles in the process of research activity i.e., how the research is conducted and constructed (Tuli, 2010). In any research, ontological questions deal with the nature of reality, while epistemology poses questions such as: how do we know and what do we know? According to Cohen et al. (1994), ontological questions are concerned with the assumptions and beliefs we hold about the nature of being; epistemology

is concerned with the theory of knowledge; and methodology, is concerned with how we gain knowledge about the world.

Generally the epistemology and ontology of the nature of the phenomenon determines the research paradigms. A number of theoretical paradigms are discussed in the literature such as: positivism/empiricism, interpretivism, phenomenology, critical theory and postmodernism (Dunne, Pryor and Yeats, 2005; Creswell, 2009; Cohen *et al.*, 2011). These researchers argued that the aim of research practice should be to focus on understanding the meaning that events have for the phenomena being studied. In so doing they considered the importance of ontology and epistemology being incorporated in methodology. Robottom and Hart (1993) described three paradigms for Environmental Education research: post positivism, interpretivism and critical theory.

According to Neuman (2003), in terms of ontological and epistemological positions commonly used in social science, there are two broad and contrasting research paradigms: positivism (or objectivism) and constructivism (or interpretivism). Positivism holds that there is an independent reality and constructivism assumes that reality is the product of social processes and therefore a human construct (Mutch, 2005). The interpretive research paradigm views reality and meaning making as socially constructed and it holds that people make their own sense of social realities. Interpretive researchers often use qualitative research methodologies to investigate, interpret and describe social realities (Bassey, 1995; Cohen, Manion and Morrison, 2000). The research findings in qualitative methodology are usually reported descriptively using words (Mutch, 2005).

The philosophy of positivism believes that the world exists and that researchers can use quantitative methods to rediscover it and so make objective statements about reality (Cohen, Manion & Morrison, 2000). A more subjective epistemology seems appropriate for ESD as it is not something that has a reality separate from ourselves and our social environment; ESD should be understood as the conceptual interaction between our physical surroundings and the social, political and economic forces that organise us in the context of these surrounding (Di Chiro, 1987, p. 25). Research into ESD is undertaken in the disciplines of both natural and social sciences and so is influenced by both natural sciences and social sciences research methods.



Several researchers, for example Payne (2009), Gonzales-Gaudiano and Lorenzetti (2013) also believe that the research on Environment Education and on ESD is shaped ontologically and epistemologically by a mix of uneven historical, demographic, geographic, linguistic, social, technological, cultural global and ecological factors. For this reason the role of interpretivism in ESD research is considered central to all other research methodologies.

The aim of this study is to explore the perceptions and the practices of the teachers, head teachers and student teachers in other words how they interpret the phenomenon. Therefore, it better fits in the framework of interpretivism because this approach to research has the intention of understanding human practices. Cohen and Manion (1994, p. 36) describe this as "the world of human experience". Mertens (2005, p. 12) suggests that "reality is socially constructed" and interpretivist/ constructivist researchers tend to rely upon the "participants' views of the situation being studied and recognise the impact on the research of their own background and experiences (Creswell, 2003, p. 8). The goal in this study is to develop an understanding of how the phenomenon of ESD is perceived and practiced by the participants.

Unlike positivism, the interpretative perspective gives the researcher an active role in the research process. In other words, the researcher needs to interact with his/her subjects in their own settings. In this approach there is explicit recognition that all the observations and analyses are filtered through the researcher's world view, values and perspectives (Merriam, 1988). Roberston (1993) supports the same idea by stating that a goal of interpretative research in education has been to probe the knowledge or understanding in an attempt to make it explicit. Hence, the focus of the research in this study is to probe the practices and the understandings of the student teachers, teachers and the head teachers in the schools. According to this perspective, the researcher is regarded as both the main data-collector and the active meaning-constructor (Picciano, 2004).

To put it simply, the interpretative researcher obtains the majority of the data from talking to the participants in the setting in which they create their realities, discover general laws but to provide explanations and interpretations about the world, as it is perceived by the participants (Radnor, 2002). However this approach has been criticised due to the independent and active role of the researcher, as Radnor (2002, p. 30) describes: "It must be recognised that this active role of the researcher might negatively impact on the results, as the researcher might lend some subjectivity to the meaning." For tackling this, the clear

objectives of the research should be kept in mind and the data should be gathered through different methods to make the results more reliable.

#### **4.2.1 Phenomenology**

Phenomenology is “about the qualitatively different ways in which people experience and think about various phenomena” (Marton 1988a). To support this statement, Marton (1988b) investigated people’s understandings and found that phenomena were understood in a limited number of qualitatively different ways by different individuals. An aim of phenomenology then, is to characterize the distinctively different ways in which people understand things. This approach seems to be very appropriate while conducting an interview. Wales (1992) explains this further that the outcomes of phenomenological research are categories of description, which the researcher frames in an attempt to communicate the understanding of an interviewee.

Phenomenology emphasizes the meaning people attribute to their own existence and experience. The principal task of this study is to discover and explore the essence of the particular phenomenon of ESD in Pakistan through the experience of practitioners in this field. In doing so the researcher seeks intuitively the essence of particular phenomenon, not infusing his or her own beliefs and ideas about the phenomena, and aims to detect the intentionality of the people’s experience of them (Wales, 1992). According to Layder (2006, p. 93) the meanings of phenomenology arises from the world of daily experiences as it is daily lived by different individuals who try to make sense of it and come to terms with it. Having considered all these approaches, the present study aligns most closely with the phenomenological and interpretivist approaches.

According to Layder (2006, p.12-25) the researcher taking the phenomenological approach avoids, as much as possible, the use of assumptions about the phenomena under study, avoids reducing complex reality to a few variables and use appropriate instruments that are reactive and are greatly influence the reality she or he is trying to study. Such a researcher goes in the field with an open mind, to carry out investigations in which the conclusions are post hoc rather than a priority. The idea of phenomenology is also advocated by Friere (1985, 1994, 1998, 2005) who stressed on the dialogical relationship to let a topic to be known, enabling participants to undertake self-reflection of their views that might then produce a new, different, or “other” concept.

On the basis of all the views presented by researchers, the phenomenological position of the research is established for interview data collection. This study is intended to explore the practices of teachers, head teachers, student teachers and the role of curriculum. The phenomenological interpretive philosophy leads the research towards the methodology of case study and explorative study. A case study methodology is adopted because it presents and interprets the thoughts, views and practices of participants. Cohen et al, (2005, p. 254) have described the characteristics of case study to be portrayal of participants' 'lived experiences of, thoughts about feelings for a situation. Keeping in mind all the researches, the phenomenological approach was also adopted by conducting interviews and the analysis of the views was undertaken qualitatively.

According to Holloway (1997) researchers who use phenomenology, are reluctant to prescribe techniques. Holloway goes on to state that one cannot impose a specific method on a phenomenon. Therefore, for the present study, which is exploratory, the technique of mixed methods was adopted to explore the perception of the participants both qualitatively and quantitatively which leads towards a pragmatic paradigm.

#### **4.2.2 Pragmatic paradigm**

A pragmatic paradigm may best support mixed methods research which allows the use of multiple types of instruments for collection of data that undergoes both qualitative and quantitative analysis (Cohen *et al.*, 2011). As discussed above phenomenological approach helps to interpret the the views and thoughts of the participants qualitatively but to make the results more reliable and to deal with the large sample of population quantitative method is considered to be appropriate. Therefore, a mixed method design (predominantly qualitative) was considered appropriate for this study.

Pragmatism does not refer to any one system of philosophy or view of reality. Pragmatist researchers focus on the 'what' and 'how' of the research problem (Creswell, 2003, p.11). Early pragmatists "rejected the scientific notion that social inquiry was able to access the 'truth' about the real world solely by virtue of a single scientific method" (Mertens, 2005, p. 26). Pragmatism is often seen as the paradigm that provides the underlying philosophical framework for mixed-methods research (Tashakkori and Teddlie, 2003; Somekh and Lewin, 2005). Some mixed-methods researchers, however, align themselves philosophically with the transformative paradigm (Mertens, 2005). It may be said, however, that mixed methods

could be used with any paradigm. The pragmatic paradigm places the research problem as central and applies all approaches to understanding the problem (Creswell, 2003 p 11).

Therefore, due to the nature of the study and keeping in mind all the characteristics of a pragmatic paradigm, a mixed method approach was adopted underpinned by interpretative/constructive and phenomenological philosophy that lead towards a research design to address the research questions appropriately. Figure 4.1 below illustrates that the identification of ontology and epistemology in the start of any research determine the research design and methodology of the research.

Figure 4.1 Impact of Research philosophies on the choice of research method

### 4.3 Research Design

Research design is a systematic approach to link the study with the wider research community and making it more understandable and accurate in terms of shared epistemology. According to Mertens (2005, p. 7) “a researcher's theoretical orientation has implications for every decision made in the research process, including the choice of method.” The literature indicates the rising tendency for mixed methods research. These methods are considered to be an attempt to legitimate the use of multiple approaches in answering research questions, rather than restricting or delimiting researchers’ choices (Johnson et al., 2004). Keeping in mind the nature of the study a mixed methods or pragmatic approach was adopted.

In order to adopt mixed methods research in an effective manner, the researcher should consider all of the relevant characteristics of quantitative and qualitative research. For example, the characteristics of a quantitative research approach focuses on deduction, confirmation, hypothesis testing, explanation, standardised data collection, and statistical analysis. The major characteristics of traditional qualitative research are induction, discovery, exploration, the primary instrument of data collection, and qualitative analysis.

As a consequence of gaining the understanding of the strengths and weaknesses of qualitative and quantitative research methods, puts the researcher in a position to mix or combine strategies what Johnson (2007) calls the *fundamental principles of the mixed research*. According to this principle, the researcher should collect multiple data using different strategies, approaches, and methods in such a way that the resulting mixture or combination is likely to result in complementary strengths and non-overlapping weaknesses. Mackenzie (2006) supports the same idea by stating that recently, research approaches have become more complex in design and more flexible in their application of methods with mixed-methods being more acceptable and common (Mackenzie, 2006). A mixed-methods approach to research is one that involves gathering both numeric information (e.g., on instruments) as well as text information (e.g., on interviews) so that the final database represents both quantitative and qualitative information (Creswell, 2003, p 20).

According to Gorard (2004, p. 7), combined or mixed-methods research has been identified as a "key element in the improvement of social science, including education research and making research strengthened by the use of a variety of methods”. Gorard (2004, p 7) argues

that mixed method research "requires a greater level of skill, can lead to less waste of potentially useful information and creates researchers with an increased ability to make appropriate criticisms of all types of research and often has greater impact, because figures can be very persuasive to policy-makers whereas stories are more easily remembered and repeated by them for illustrative purposes." Tashakkori and Creswell (2007, p. 4) have outlined the key elements in combining qualitative and quantitative approaches:

- Research questions with qualitative and quantitative approaches.
- Framing the research questions developed in the participatory as well as preplanned manner.'
- Following two types of sampling procedures.
- Multiple data collections procedures including focus groups, interviews and surveys.
- Collection of numerical as well as textual data.
- Statistical as well as the thematic analysis of data; and representation in conclusions (i.e. 'objective and subjective')

Having considered all the effectiveness and capacity to bring reliable results, a mixed methods approach was adopted as a research design of this study that provided greater confidence in the finding. In this study, information was gathered by three main strategies:

- Questionnaire survey (through questionnaire for teachers and students)
- Conducting open ended interviews (with head teachers)
- Observation of institutions and a review of curriculum.

These methods sought to address the following themes:

- How ESD is defined in the literature?
- What evidence can be found for ESD in the curriculum in terms of content?
- What dominant types of teaching styles were apparent?
- To what extent were the types compatible with the style deemed consistent with promoting sustainable development education?

The first phase of this study presents the intellectual responses to sustainable development and Education for Sustainable Development as well. It also presents a picture of the implementation of ESD through the perspective of organizations and policy-makers internationally and in Pakistan. This theoretical framework serves two purposes. First, to understand ESD as a global phenomenon; second, to explore the significance of implementation and practitioners of ESD. In the first phase of the field research, semi-

structured interviews were conducted with the head teachers of the schools. This generated qualitative data with the description of the heads of the institutions. In the second phase of the study, a questionnaire was used with a large number of teachers and student teachers to explore the views of the teachers through quantitative data. Morrison (2007, p. 31) notes that there are strengths in a mixed method approach since these methods help each other to create a fuller research picture, generalizability for qualitative research is facilitated, better links between micro and macro levels of analysis can be achieved and a suitable emphasis for different stages of the research can be supported. Prior to moving towards the phase of field study, a content analysis of the curriculum was undertaken to provide a basis for interviews and questionnaire survey.

#### **4.4 Review of curriculum**

In the present study, to explore the status of ESD in the Pakistani educational system, a few relevant policy and curriculum documents were analysed. Portor (2004) defines curriculum analysis as the systematic processes of isolating and analysing targeted features of curriculum. Curricula review most commonly involves describing and isolating a particular set of content in a curriculum that describe what students are to know and to do with the content. This approach was in line with the principles of the interpretative paradigm.

Documents are one of the major sources of information in educational studies. Documents - such as education policies, national curriculum for primary schools and for prospective teachers - have not only helped develop the research questions but also helped frame interview records and develop questions for the teachers and student teachers who are respondents in this study (Yanow, 2000; Denscombe, 2007; Corbin & Strauss, 2008). Before undertaking field research, the researcher had explored the current status and past issues of primary education and teacher education in Pakistan through available online resources, for instance national reports and policy documents. The next step was to access local knowledge through national curriculum document, course packs, lesson plans to learning more about how the curriculum planners, head of schools, teachers and teacher educators interpret the new teacher education and primary school curriculum. A few numbers of other documents were also reviewed to support the study provided by the participants, including academic programmes and academic calendars, teachers' diaries and teachers' guide books. This basic document review not only helped to develop research questions but also to direct and help to frame interview protocols and observation records (Yanow, 2000; Chamberlain-Salaun, 2013)).

In this present study, text analysis has been undertaken to find out what kinds of stories about sustainable development are dominant in the national curriculum and textbooks. These documents were qualitatively analysed in order to explore the deeper meanings, as this frequency does not necessarily reflect the hidden meanings in the texts. The documents were read several times in order to identify the emerging issues, which were employed as the main categories. The schools for this study were chosen from both the public and private sector. Although the curriculum is almost same in both sectors, the text books are not same because all the state schools follow the same textbooks prescribed by text book boards and the private schools follow different books from different publishers. For this reason, the text books for public primary schools were considered due to their uniformity in all the schools while, the text books used in private schools could not be reviewed as every school has a different set of text books but they follow the national curriculum to some extent.

Prior to this field study, along with the primary grades curriculum, the teacher education curriculum outline of 2010 was available on the HEC website was also reviewed. It included the plans of study for B.Ed. Honours Elementary, B.Ed. Honours Secondary, ADE (Associate Degree in Education) and M.Ed. However the course outline for B.Ed. Honours was considered for present study because this programme is considered to be more professional with four years of duration and related to elementary education. Accreditation procedures were being developed, and all the institutions around the country were supposed to follow this outline. The review of the curricula provided a basis towards the selecting and structuring of data collection instruments which refer to the methods and procedures researcher use to gather data for a study. Researchers might use interviews, observations, questionnaire, documents and anything else that can help them answer their research questions (Leedy & Ormord, 2005, P 143). The principal source for the present study included interviews, questionnaire survey and review of curriculum. In addition, field notes, participants' observations were also utilised during the course of data collection. Questionnaires can be used to collect data for quantitative analysis. However, a large number of survey studies normally use both questionnaires and interviews to gather data. In this case a questionnaire was used to collect descriptive information from large number of participants, while interview were used with a smaller group of participants to deepen and support the questionnaire responses (Brog, Gall and Gall, 1993).



## 4.5 Interviews

The interview is regarded as one of the appropriate strategy for data collection in qualitative research. This strategy goes along with the interpretative philosophy of the study. Merriam (1988) and Lythcott and Duschi (1990) refer to interview based research as generally associated with a “qualitative” form of research, in that researchers attempt to characterize the kinds of beliefs that people espouse. The investigator is to be understood as the primary ‘instrument’ for gathering and analysing the data. This approach to research is explicitly interpretive (Howe & Eisenhart, 1990). Cannell and Kahn (1968 in Cohen & Manion, 1994, p. 95) define interview as: “A two person conversation initiated by the interviewer for the specific purpose of obtaining research-relevant information, and focused by him on content specified by him on content specified by research objectives of systematic description, prediction or explanation.” The literature presents three approaches to conducting an interview: the informal conversational interviews, the general interview guide approach, and the standardised open-ended interview (Fontana & Frey, 1994; Erickson, 1998). These approaches are different and adopted according to the requirements to which the interview questions are determined and are standardised before the interview occurs.

The informal conversational interview, as the name appears, is relaxed in nature and the series of questions is spontaneous arising from the general conversational flow. Such interviews frequently involve multiple interviews and are of long durations, months or even years (Wolcott, 1997a). The main advantage of using this approach is the depth of information gathered compared with other more structured interviews. There are however, many disadvantages of this approach since the data collection is less systematic and problematic to analyse and in addition it takes a lot of time.

The general interview guide approach, also referred to as the partially or semi-structured interview approach, is more structured in nature than the informal conversational interviews and involves outlining a set of issues that are to be explored before interview begins (Weirsmas, 1991). There is not necessarily a set order of questions, and no specific wording is used for all the different participants. An interview question outline serves as a form of checklist to ensure that all the topics have been covered. In this approach, there is still a considerable degree of flexibility but the use of this approach makes the data gathering more systematic and facilitates data analysis. The third approach, open-ended interview, is the most structured of the three interview techniques and resembles a verbal questionnaire. This

approach makes the data analysis more straightforward, and interview time and flexibility towards the participants are minimised (Fraser, 2004).

As mentioned by Burnard et al. (2008, p. 11-19), semi-structured interviews consist of several key questions that help to define the areas to be explored, but also allow the interviewer and respondent to diverge in order to pursue an idea or response in whole detail. In this study semi-structured face-to-face interviews were used to collect data for qualitative analysis, from the head teachers. Semi-structured interviews provide more opportunity to the participants to respond freely on an issue while retaining some kind of control of the major issues to be explored. Planning and formulation of a framework for participant's to share their views as they best see fit is very important. To support this, Ribbins (2007, p. 215) provides guidance on four aspects to be managed effectively to produce 'rich and reliable data' from interviews:

- i. What is asked and how
- ii. The interviewer and interviewing
- iii. Recording
- iv. Transcribing

In keeping with these four key elements, first of all the objectives of the study were reviewed. The interviews were intended to explore the practices and perceptions of school heads in the implementation of ESD in their schools. To achieve this, the next step was to identify the themes and issues to be explored through the interviews. These themes were developed through the review of literature and discussion with the researcher's supervisor. The major themes were delineated as follows:

- Understanding of ESD.
- Role of head teachers in implementing the strategies regarding the development of ESD.
- Challenges faced in the implementation process.
- Impacts for students.
- Suggestions to enhance the knowledge and practices of ESD among teachers and students.

To address these themes, questions were designed to probe the perceptions and insights of the participants. Simple, short and easy to understand questions were designed to put the interviewees at ease to speak about their experiences. The details of other elements of

interview survey described by Ribbins (2007) related to administering the interview, position of the interviewer, recordings of the interview and, at the last stages, transcribing and analysis, are discussed in the next sections.

#### **4.5.1 Recruitment of sample and administration for interviews**

The purpose of the study was to obtain perspectives of teachers, head teachers and student teachers in educational institutions in Pakistan on the practices of ESD. Therefore, the sample had to be defined at two levels, at the level of institutions and then at the level of teachers, head teachers and student teachers in these institutions.

At the first level, the institutions that formed part of the sample were 10 primary schools from both private and public sectors and two campuses of Initial Teacher Education University in Pakistan. In Pakistan especially, the state schools are segregated by gender. For this reason, both girls' primary schools and boys' primary schools were considered, selected from two cities from the Punjab, Pakistan. At the second level, the head teachers were recruited from all ten considered schools as participants of the study.

For interviews, the head teachers from selected schools were contacted and a schedule for interview was set out according to their convenience. Every head teacher was given the plain language statement which contained information about the research, its purpose, the purpose of including the head teachers in the research and the commitment to confidentiality and anonymity. Then they were given the consent forms (Appendix 4) seeking their permission to audiotape the interview and to indicate the voluntary nature of interviewees for participating in the study. Most of the participants used both Urdu and English language during their interviews because in Pakistani schools English is the official language for correspondence and English is the medium of instruction in many schools, especially in urban areas and in private schools.

#### **4.5.2 Analysis of interview data**

The analysis of the interview data was conducted on the pattern of 'conventional content analysis'. In conventional content analysis, coding categories are derived directly from the text data or findings (Hsieh and Shanon, 2005, p 127, Bryman, 2008). The first step for analysis of interviews was to translate the responses to English from Urdu. The findings of interviews were analysed followed by questionnaire analysis. To make the data analysis more reliable it is important to weave the inferences drawn from questionnaires, interviews,

focus groups and observations together to make a coherent whole (Atkinson *et al.*, 1991). For the sake of anonymity, the respondents were allocated numbers instead of their names (R1a....R5a for state school head teachers and R1b....R5b for private school head teachers) to make their views different from other participants. Interviews were listened carefully and then translated in English. While translating and transcribing the data, the researcher sought the help from one of her colleagues from English department who was proficient both in Urdu and English. Therefore, this process was done in two phases firstly, it was translated and then it was transcribed. The interview was reviewed many times to identify the codes or issues within each theme explored in the interviews. The raw interview data was divided into responses to the questions, which represented the themes. Then the issues within each theme were identified looking at the interviews as a whole. Thematic analysis is the most commonly used method, among a wide range of qualitative data analysis approaches for identifying, describing and interpreting themes to offer 'thick description' (Braun and Clarke, 2006, p. 79). The six stages of thematic analysis presented by Geertz (1994) were followed. These stages are: familiarising yourself with data, generating initial codes, searching for themes, reviewing themes, defining and aiming themes, and producing the report. Themes were checked against the data many times to ensure the accurate recording of all the information. Wherever needed, the narratives of the participants were quoted to illustrate the themes.

The detailed analysis of themes extracted from interviews and curriculum review and questionnaire with field observations is presented in Chapters 5,6,7 and 8.

#### **4.5.3 Validity in interviews**

According to Cohen and Manion (2003), the most practical way of acquiring greater validity is to minimise the amount of bias towards the interviews as much as possible. This includes a tendency for the interviewer to seek answers that support her perceived notions and misinterpretation on the part of the interviewer of what the respondent is saying or misunderstanding on the part of the respondents of what is being asked. Johnson and Christensen (2004) suggest three types of validity in qualitative research: descriptive validity, interpretative validity and theoretical validity. Descriptive validity refers to describe the statements from the informants and description of settings, time, and so forth. By comparison interpretative validity is concerned with accurate understanding of the participants, opinions beliefs, feelings and so on, and reporting them accurately in research. Regarding interpretative validity, Johnson and Christensen (2004, p. 34) advise researchers

“to try to read the minds of the participants, look through the eyes and see and feel what they are feeling”.

In the present study, internal and external validity is considered in all methods. In terms of internal validity all the procedures regarding the constructing of research instrument, piloting, implementing, analysis and interpreting the data was considered. In addition triangulation method or mixed methods were used to collect data (e.g. questionnaires, interviews, curriculum review and observations) to enhance the validity and reliability. According to Johnson and Christensen (2004, p. 255) “through the rich information gathered from different people, at different times and from different sources, the researcher can develop a better understanding....than if only one data source is used.”

#### **4.5.4 Reliability in interview**

Reliability and validity are dependent on each other. Lincoln and Guba (1985, p. 316) state that: “Since there can be no validity without reliability, a demonstration of the former [validity] is sufficient to establish the latter [reliability].”

Reliability in any research data can be judged by the extent of results acquired by repeated administration. Conway et al. (1995) suggest that one-to-one semi-structured interviews appear to have the highest reliability. Thus the reliability in interviewees can be possible if the questions in the interview are structured with the properties of questionnaires (Bush 2007, p. 93). However Bush justifies the lapse of reliability in this approach too by stating that providing the opportunity of free expression to the participants increases the validity and there is a deliberate strategy of treating each participant as a potentially unique respondent. Therefore reliability may be limited but it can be balanced by enhancing the validity in data. To support the same idea, Judge et al. (2001) state that reliability is a consequence of the validity in a study. Therefore, in the present study the reliability was ensured by conducting one-to-one semi-structured interviews and by following best practices for the process of interviews such as developing a rapport between interviewer and interviewees and preparing the interviews questions very carefully.

Silverman (1993) argues for the importance of the open-ended interviews, as this enables respondents to demonstrate their unique way of looking at the world and defining the situation. It recognizes that what is a suitable sequence of questions for one respondent might

be less suitable for another. To enhance and ensure the reliability of the qualitative data the following steps were considered in line with the recommendations given by Mertler and Charles (2005, p .89):

- Checking multiple sources of qualitative data to ensure themselves that the data gathered is consistent.
- Thinking carefully about the procedures used to acquire the data and trustworthiness of their sources of informants.
- Applying internal criticism by comparing the information given by one informant to other informants.

#### **4. 6 Questionnaire**

A questionnaire is not just a form to be filled out: it is an instrument to collect particular information with specific aims in mind such as the study of attitudes, perceptions, and preferences (Weirsmas & Jurs, 2005, p 159; Muijs, 2004, p 45; Borg, Gall & Gall, 1993, p. 219). Using this method a large amount of data can be gathered from large sample very rapidly providing efficiencies in time, effort and cost (Johnson, 2004). According to Punch (2013), the choice of the research questions should depend upon the purpose of the study and the understanding of the participants. Therefore, the questions were designed reflecting the purpose of the study and teachers understandings of the phenomena of ESD. In the present study, the two types of questionnaire were included, one is for the purpose of obtaining the general and specific perceptions of the student teachers and other is for the school teachers about the practices and the current status of ESD.

##### **4.6.1 Development of Questionnaire for implementation**

Guidance on the construction of the questionnaire as a research instrument states that there are mainly two types of questions: structured and open ended (Wilkinson & Birmingham, 2003; Verma & Mallick, 1999). Cohen et al. (2000) claim that the structured form is easy, quick to complete, and straightforward to code in a computer for analysis. This type of questionnaire was used because of its advantages. It is an economic method in both time and cost, it allows the respondents to check the content in less time and yield more accurate information (William, 2005). The questionnaire used in present study consisted of structured questions and open-ended questions which were placed after each question in order to give the participants an opportunity to either comment on or add to the structured statements.

The questionnaire development for this study followed a documentary analysis including National Education Policy (2009), B.Ed. Hons curriculum and curriculum from grade I to grade V in addition to the review of available literature. For this study two types of questionnaire were used, one is for teachers and other one is for student teachers. An additional section was included in teacher's questionnaire to gather information about their teaching experiences and activities; the purpose was to see if their teaching activities are offering any opportunities for fostering ESD. The rest of the sections are same in both questionnaires.

The confidentiality and anonymity of respondents was respected. Yet it is evident that to give enough time to respondents is necessary to understand the contents of questions before they write down their responses otherwise all the efforts for carrying out the questions will be useless. However, several researchers noted the hurdle of low response rate. This was tackled in the present study by the presence of the researcher. This was an important aspect considered in present study, which looks forward reliable information from the respondents. The questionnaire used in the present study consisted of three main parts:

- Part I related to the demographic profile of the participants, such as gender, experience, academic qualification, type of institution in which they are teaching/studying and the subjects they are teaching.
- Part II focused on the knowledge of Environmental Education and Education for Sustainable Development.
- The third part consisted of the questions dealing with the characteristics of good practitioners of ESD, goals of ESD, the skills that should be developed to introduce ESD in the classroom and appropriate teaching strategies that should be adopted to deliver ESD derived from reviewed literature.

#### **4.6.2 Recruitment of the sample for questionnaire survey**

The participants for questionnaire surveys were school teachers and teacher students. As stated above, for this study both girls' primary schools and boys' primary schools were considered, selected from two cities from the Punjab, Pakistan. At the second level, the head teachers and ten teachers from every selected school and fifty students from selected campuses of participating university were selected. The head teachers and teacher were selected for the study because they are the key practitioner and translator of educational policies at the school level. At the same time keeping in mind the significance of role of ITE

for prospective teachers students from B.Ed. Hons were invited to participate. All the responses from these participants helped to develop a level of practising ESD in Pakistan.

#### **4.6.3 Administration of questionnaire survey**

After conducting the briefing session, a plain language statement along with the consent forms and the questionnaire in both languages were delivered to the selected teachers. The plain language statement explained the purpose of the study and the reason for including the participants in it and the right of the participants to withdraw from the process at any point. They were assured that their confidentiality would be maintained. The consent form again included the statement on the voluntary participation of the participants.

While collecting data from the student teachers, a colleague and friend of the researcher cooperated with her to allow the students to participate in the study and spared her class time. These selected students were given the plain language statement and consent forms to seek their willingness to participate. When the students agreed, they were given the questionnaires in English language as they all are comfortable with English.

#### **4.6.4 Analysis of the questionnaire data**

The type of items used in the structured questionnaire were varied, including demographic, factual dichotomous, multiple choice, rank order, rating scales. A Likert scale was used in four questions because the use of scales can “afford the researcher the freedom to fuse measurements with opinion, quality and quantity” (Cohen et al., 2007, p. 327). These scales items were included to explore the level of agreement of the participants. These were on the continuum pattern (1 very difficult, 2 difficult, 3 moderately difficult, 4 not difficult, 5 not at all difficult and 1 very important, 2 important, 3 not very important, 4 not important, 5 not at all important, 1 strongly agree, 2 agree, 3 undecided, 4 disagree, 5 strongly disagree). Instead of using dichotomous questions to get a clear responses on issues clearly stated in the data, a rating scale was used to show the sensitivity to make the data “more sensitive and responsive to respondents” (Cohen et al., 2007, p. 328). The analysis of the data started after collection of all the questionnaires. The first step was to translate the responses to English from Urdu. However there were only few such questionnaires as majority of the teachers chose to respond in English. The data obtained through the questionnaire was analysed according to the two categories of the sample, the student teachers (STs) and teachers. The data was analysed through SPSS software. This software was appropriate for the analysis of responses



on a likert scale. Percentages and Mean were applied to get overall results of the perceptions of the participants regarding different aspects of ESD. `

#### **4.6.5 Validity and reliability of the questionnaire**

After constructing the questionnaire, three issues were taken into consideration: checking its validity, checking its reliability and translating it in to Urdu. Validity and reliability in a research is addressed by using different instruments for data collection. The aim to test the validity is to make sure that the adopted instruments measure what it is supposed to measure. There are several kinds of validity that can be used to make the study valid. These include content validity, internal validity, external validity, face validity, predictive validity, descriptive validity, theoretical validity, interpretive validity, evaluative validity, criterion validity (Cohen et al., 2000). In the present study the issues and themes which emerged from the reviewed literature (chapter three) influenced the construction of the questions in the questionnaire. Then the initial version of the questionnaires was revised by supervisors. The aim was to remove any ambiguity and to maintain relevance with the main research questions. Therefore, face validity and content validity was established to the extent that the research findings accurately represented the phenomenon under investigation. Some authors (Cohen et al., 2000, Bolenius et al., 2012) are of the opinion that face validity is the component of content validity and internal validity because face validity involves the in depth reviewing of items in the questionnaire and agreeing that each of items of measurement matches any given conceptual domain of the concept.

Reid (2006) believes that genuine reliability can be achieved with good samples and controlled use of surveys. By keeping this in mind, the questionnaire was carefully constructed and administered in an environment where the respondents could respond honestly and freely. Another factor that can ensure the degree of reliability is a pre-test of the instrument so that it can yield the correct information after identifying the weaknesses in it. Krippendorff (2004) identifies reliability as the degree to which the same results can be produced when the same objects are measured repeatedly. In this study, the test of the questionnaire was conducted as pilot study with school teachers and student teachers. After the pilot study, a few amendments were made in both questionnaires which were used in main study. For example, two easy and understandable definitions of ESD both in Urdu and

in English were included after pilot study because the participants were not familiar with the term ESD.

#### **4.7 Positionality of Researcher in Research Process**

The issue of researcher's positionality in a research as an outsider or insider is considered to be very important, especially in social science research. This section is all about the position of the researcher in the research process and therefore is written in the first person. This project was set in the university and primary school system in Pakistan. University students were familiar with the survey conducted through questionnaire but the school teachers and especially the head teachers were quite hesitant to get ready for sharing the information. Under such circumstances it was difficult for me to gain the trust of the participants for taking part in surveys and interviews. In this situation adopting an '*insider approach*' was helpful.

I had been working in this university for three years, that's why it was easy for me to get the access to the students for questionnaire survey. Dwyer (2009) believes that this insider role status frequently allows researchers more rapid and more complete acceptance by their participants. Therefore, participants are typically more open with researchers so that there may be a greater depth to the data gathered. I have carried out the supervision of the questionnaire filling process and there were opportunities for student-researcher interaction to discuss openly some of the issues related to ESD.

In case of conducting interviews with head teachers and questionnaire survey with teachers of primary schools, although I was not related to the schools, there is a comfort level when people see you from same background in terms of their community member. My status as an outsider in the process of interviews helped me a lot: If you're different – you're an outsider – you can get more trust. People can tell you things that they won't tell people that are nearest and working with them. I was an insider too because I shared cultural, linguistic and ethnic identities with my participants. I had easier access to the research field and, as an insider, I am also able to interpret the Pakistani culture, having a shared understanding of the education system. The element of "insiderness" creates a rapport relatively free from tensions and "contributes to the legitimacy of the research" in the eye of participants (Krestetter, 2012, p. 99). Being an insider researcher enhances the depth and breadth of understanding a population that may not be accessible to a non-native researcher, questions about objectivity, reflexivity, and authenticity of a research project are raised because

perhaps one knows too much or is too close to the project and may be too similar to those being studied (Kanuha, 2000, p 444). Another advantage that I received is it was very easy for me to do the translating and transcribing process in both interviews and questionnaire data.

#### **4.8 Ethical Considerations**

Every research study dealing with human beings has ethical implications which should be considered (Cohen et al., 2006). Prior to initiating interactions with the participants a formal channel of permission and human dignity should be considered. Bell (1991) provided a checklist which includes clear formal permission from participants through proper official channels. For this study I had to apply for ethical approval before going to the field for data collection. This entailed seeking approval from the university's ethics committee on:

- statements for the purpose of the research and about the recruitment of participants
- with a sample of instruments (questionnaire/ interview questions) used for the research,
- a sample of *informed consent of the* participants is also included. The informed consent form contains description of the study,
- inform the participants that their participation in research is on voluntary basis and they can withdraw if they wish to do so,
- ensure the confidentiality and anonymity of both collecting and using data.
- inform the participants that how the results will be used and they can get a copy of results as well,
- provide the participants with necessary details about the researcher and supervisor,

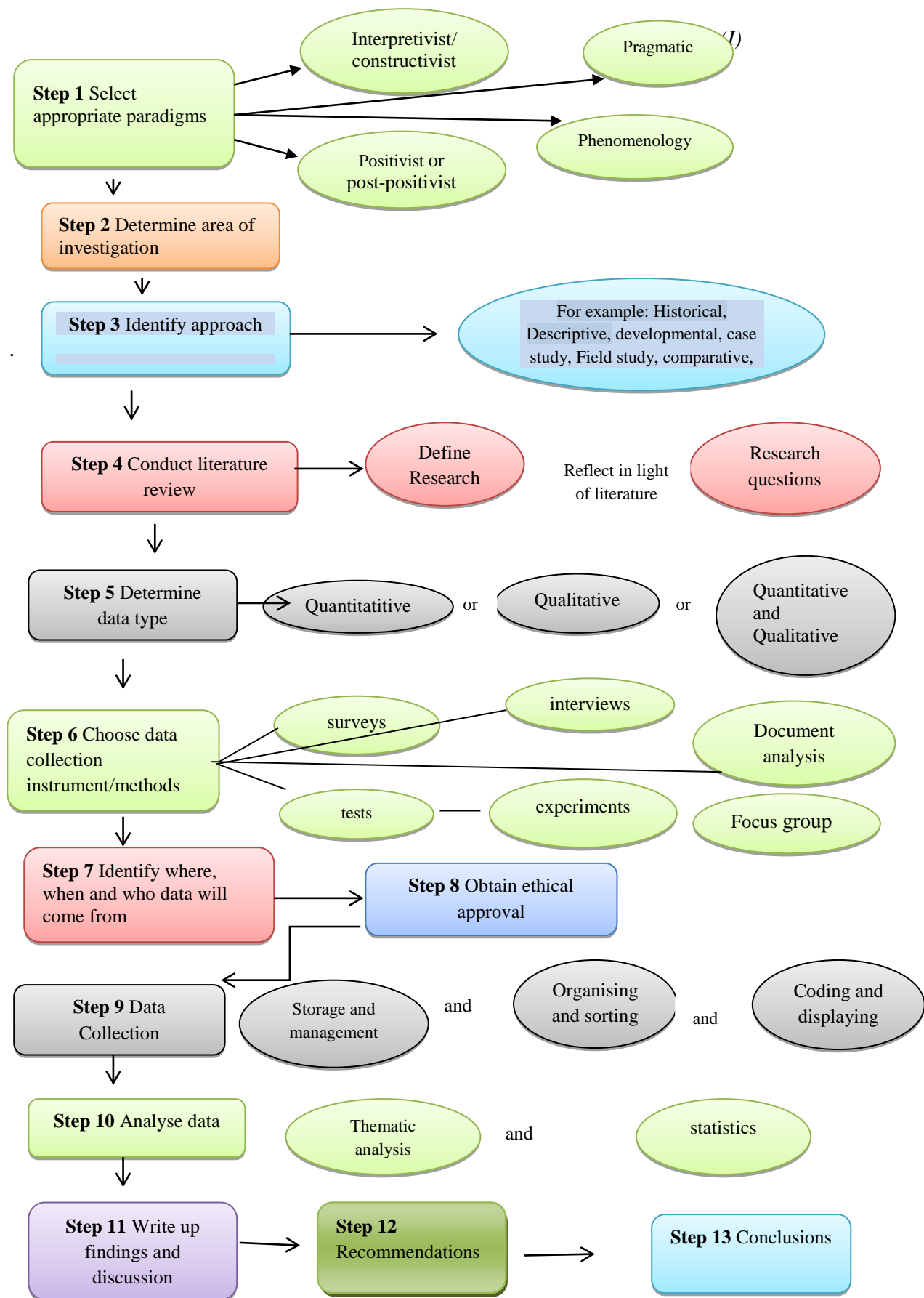
Cohen et al., (2007) believed that the researcher should be open and honest with participants and to be familiar with the guidelines and rules of the institution where the research participants are based is also worth considering. Therefore, I got the permission from related authorities in Pakistan to access research participants. The time and venue for the data collection was decided accordingly suggested by heads of the institutions. The third phase of the study was to collect the data from student teachers. For this purpose 50 students of B.Ed. Honours were recruited. Having benefit of being the faculty member of this campus the researcher got the permission for selecting the students for the research very easily. After getting the permission from the head of the campus 50 students were selected from the 5<sup>th</sup> semester of B.Ed. Hons.

The analysis of the data generated through three research instruments is reported in the following chapters. Chapter five presents the curriculum analysis through curriculum review;

chapter six presents the analysis of questionnaire data and chapter seven deals with the data and themes derived through interviews.

#### **4.9 Conclusion**

To address the main questions of the study, mixed method research methodology was adopted, supported by an interpretative and phenomenological philosophical framework. Quantitative data analysis was applied to investigate the perceptions of teachers regarding their practices in classrooms for ESD. The interviews were conducted with head teachers and followed by qualitative analysis. To make the situation clearer, a curriculum analysis was undertaken for primary classes and for B.Ed. Honours. Ethical approval was sought and issued from the University of Glasgow after considering all the ethical conditions. Figure 4.1 below shows the methodology for the present, study step by step.



**Figure. 4.2:** Research methodology opted for present study step by step

## **CHAPTER FIVE (I)**

### **Education for Sustainable Development in Primary School Curriculum in Pakistan**

#### **5.1.1 Introduction**

According to the national curriculum, Pakistani society is experiencing rapid and fundamental economic, social and cultural changes that are drastically affecting our ways of life. Pakistanis are also aware of an increasing global interdependence and the need for sustainable environment, economy and society. The main source of acquiring global awareness and the knowledge about the world issues is the curriculum (GoP, 2006 p 12). Consequently, this chapter seeks to explore the place of ESD in national curriculum of primary classes and in initial teacher education programmes in Pakistan. This section of the study explores the prospects of structuring and placing of education for Sustainable Development (ESD) in national curriculum of primary grades. In doing so the chapter seeks the evidences of developmental and environmental issues as a part of the curricula and textbooks and how these are establishing connections with each other. Before analysing the curriculum in the context of ESD, a brief overview of the significance and system of formulation of curricula and text books in Pakistani educational system is provided.

#### **5.1. 2 The curriculum development in Pakistan**

The national curriculum is the primary source of guidance for teachers. The curriculum guides teachers to use the appropriate teaching methods related to the content because pedagogical approaches and content are closely linked. It reflects the intellectual developments and state of progress of a nation. The curriculum is not a static phenomenon- it always needs improvements and changes with the change in society and time. Therefore, curriculum must be dynamic, compatible with the changing societal needs and in steps with global changes (Kaukab, 2012). For these reasons, curriculum developers face a major dilemma of conceptualising curriculum in a specific context.

Pakistan is comprised of four autonomous provinces and education is considered to be provincial affair (as stated in chapter two). However, in order to maintain national cohesion and state integrity, certain educational functions are the responsibilities of the federation-via the Federal Ministry of Education. The Federal Ministry of Education is responsible for the integration and preservation of the curriculum, syllabus, planning, policy, educational standards and text book manuscripts, strategic schedules for various educational institutions

and approval of textbooks produced by other agencies. Therefore, the formulation of education policy is the responsibility of Federal Ministry of Education.

The Education Policy (2010) considered the need for curriculum development and revision in order to address the challenges of learning as a lifelong process and globalization. As a part of Education Sector Reforms (ESR) Action Plan 2001-2006, a comprehensive assessment and revision of the curriculum takes place after every 5 years. The curriculum revision is an institutionalised process of evaluation and development (GoP, 2009). For this purpose National Curriculum Wing is responsible for the formulation, updating and reviewing of curriculum from early childhood to higher secondary grades. The Curriculum Wing undertakes reviews of different curriculums from several other countries. It reviews the curricula of 25 core subjects from grade I- XII. This review is held with the participation and suggestions from teachers, administrators, educationists, curriculum experts and students. Other measures included field visits, review of drafts by subject experts and by working leading to refinement of contents and preparation of a uniform curriculum format' (Majeed, 2009).

Accordingly, a Central/National Bureau' of curriculum and textbooks, commonly known as the Curriculum Wing was appointed to supervise curriculum and textbook development and to maintain the curriculum standards from the primary to higher secondary level(UNESCO, 1998). Figure 5.1 illustrates the hierarchy of institution responsible for curriculum development in Pakistan.

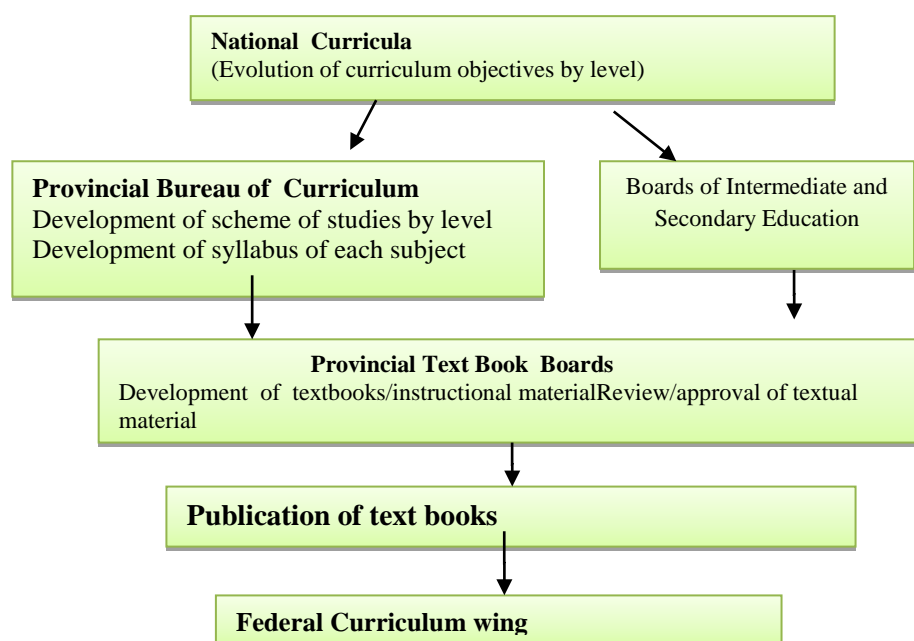


Figure: 5.1.1 Curriculum development process in Pakistan

The figure 5.1 shows in Pakistan the Federal Bureau of Curriculum and the provincial Bureau of Curriculum are responsible for designing the curriculum by following the national education policies. In the case of curriculum planning the role of head teachers and teachers is very limited as they are responsible only for how to teach it. Consequently the curriculum at school level is highly centralized. This was also confirmed by a USAID report (2002) which noted that in Pakistan the school system-especially at the primary level, is the lack of input from the broad education sector, including parents, community leaders, and students, as well as teachers and administrator. The curriculum leads towards the publication of text books which are primary source of teaching and learning especially at school level.

### **5.1.3 Textbooks**

Textbooks can pave the path towards sustainable development education (UNESCO, 2016). Researches on teaching resources indicate that textbooks are the foundations of teaching and the primary source of information in Pakistani primary and secondary schools. Textbooks play a significant role in school education by containing the content as recommended by national curriculum. The textbooks do not only contain factual knowledge but also assumptions, values and worldviews through the selections of information, stories presented and the language used (Bowers, 1993).

In some contexts, such as Pakistan textbooks are the first and sometimes the only books that a young person may read (Lässig and Pohl, 2009). The curriculum is translated into textbooks by the Provincial Textbook Board of all four provinces of Pakistan according to the geographical location and their demographic contexts. Schools are required to use the government prescribed textbooks (except in private schools and for the General Certificate of Education (GCE) of the Cambridge Board). In Pakistan textbooks for primary grades are free and are comprised of guidebooks for teachers. The examination system is based on textbooks and they aim to assess the students on their ability to memorize and recall the material present in the text books (Khan, 2011). In this way there is uniformity in terms of knowledge and information acquisition by the students which prepares the student for a centralised examination system.

Since the National Education policy of any country lays the foundations of the curriculum. Prior, moving towards the analysis of curriculum for ESD an overview of National Education Policy 2010 is presented in next section in order to trace the initiatives for ESD within curriculum.



#### **5.1.4 National Education Policy of Pakistan and ESD**

The national education policy (NEP) of a country provides the foundation upon which the system of its education rests. It reflects the aspiration and commitments of a nation for leading the road to sustainable development. In the main curriculum reforms and developments take place a result of changes to national education policies. Pakistan formally recognized the importance of Environmental education in its National Education Policy of 2009. An overview of National Education Policy 2009 has proved to be important to assess its responsiveness towards the global initiatives as embraced in the United Nation's declaration of 2005-2014 as the Decade for Education for Sustainable Development. However, this document failed to recognise the importance of ESD for meeting and initiating sustainable progress in the country. Describing Government initiatives in National Education Policy (2010, p 13), attention is given to quality education and focus on sustainable economic development in the global competitive milieu. However, aspect of environmental education is missing for economic development. Since the objectives of all social and economic development education is unachievable without linking it to EE and ESD.

Pakistan's National Education policy (2010) recommended the integration of environmental education (as the term sustainable development is not used) by stating:

“Environmental education would be integrated into all levels of curricula and syllabi from primary to university levels. Moreover, the concepts dealing with environmental education, health education, population education shall be integrated into major relevant subjects” (National Education Policy, 2010, p.10).

Despite recognizing the need for Environmental Education, there is lack of guidance for its implementation. Chapter three and four of the NEP (2010) identifies the commitments and implementation gaps in the education system and suggests that a paradigm shift is needed. This paradigm addresses the generalized adaptations and innovation in the education system. A paradigm shift addressing the requirements of ‘sustainable development’ and hence provision of EE as a step towards achieving sustainability have been completely overlooked.

#### **5.1.5 Education for Sustainable Development in the school curriculum in Pakistan**

According to the national curriculum, Pakistani society is experiencing rapid and fundamental economic, social and cultural changes that are drastically affecting our ways of

life. Pakistanis are also aware of an increasing global interdependence and the need for sustainable environment, economy and society. The main source of acquiring global awareness and the knowledge about the world issues is the curriculum (GoP, 2006 p.12).

According to Scott and Gough (2003) education can play a role in promoting sustainable development through three models (as described in chapter 3). The first model, 'education about sustainable development', provides awareness which is related to the content present in curriculum. Accordingly, this section of the study will deal with the curricula and the text books of primary grades where ESD is most relevant. **For this purpose the textbooks for public primary schools were considered due to their uniformity in all the schools. While the text books used in private schools could not be reviewed as every school has a different set of textbooks but they follow the national curriculum to some extent. The textbooks (class I-V) of Science, Social studies and General knowledge were analysed.** The reason for selection of these disciplines for analysis is the presence of evidences related to social, economic and environmental issues rather than in other subjects. According to UNESCO Sustainable Development Education can be integrated into all areas of curriculum, especially science and social studies at primary level (UNESCO, 2006). The analysis of the content will reveal the level and potential of these disciplines for achieving the goals of ESD. This analysis will provide a basis for next steps of conducting field work. As the information gathered through the analysis of curriculum helped in providing the insights for designing the questions for data collection. Further this analysis indicates the gaps while linking it with field work analysis ( see chapter 8).

At the primary grades IV-V the curriculum comprises seven subjects for each grade, such as core subjects; English, Urdu, Mathematics and Islamic Studies, and other subjects like General science, and Social studies, and art. The curriculum for grade I-III comprises English, Urdu, mathematics and Islamic studies and General knowledge. Ordinarily a Primary school has one teacher, with one class for all subjects, though there are primary schools with only one or two teachers to take care for all five grades. Teachers' guides are provided for in-service support of primary teachers with every textbook. As mentioned earlier, for this study the subject of General knowledge for class I to III and the subjects of Social studies and Science were considered for analysis.

#### **5.1.5.1 The General Knowledge curriculum**

The subject 'General Knowledge' is introduced as a separate subject for grades I-III. It is comprised of concepts from Science, Social Studies and Islamiat (Islamic studies)/Ethics.

- Knowledge of Science is drawn primarily from the life sciences, physical science, earth and space science;
- Knowledge of Social Studies is drawn primarily from the social science disciplines of History, Geography, Economics, Political science and Sociology;
- Knowledge of Islamiat/Ethics is drawn from the disciplines of Religious Beliefs, social Norms/Customs, Festivals and Moral Values.

#### **5.1.5.2 Social Studies**

Social Studies is the systematic study of the interaction of people with their environment and with other people. According to Pakistan's national curriculum for social studies the main objective of social studies is:

“to prepare young people as citizens able to participate actively and responsibly in a democratic society. Citizens of a democratic society need to be informed about public affairs, act to safe guard their rights, fulfil their responsibilities as citizens and engage in community service and actions aimed at improving their own communities, the nation and the world. The knowledge, skills and values taught in social studies must enable students to accomplish these citizenship tasks effectively” (National curriculum for Social Studies Grades IV-V, 2007).

According to Pakistan's national curriculum of social studies, it is based on the widening horizon approach, which is also called a spiral curriculum approach. A spiral curriculum demands for concepts, skills, and values to be introduced in the early years and progressively developed at each higher class level. Research indicates that children from very young age are interested in the people of other countries, other times and they can learn more about the world through innovative instructional strategies and learning materials (Warburton, 2003).

#### **5.1.5.3 The General Science curriculum**

According to the national curriculum the overall goal of Science Education in Pakistan is therefore to develop scientific literacy. The accomplishment of this goal within the school context can take place only if certain opportunities are represented. The science curriculum

provides a systematic approach to the students learning in science in a well-defined and organised framework. Teachers play the most significant role in helping students achieve scientific literacy though they will need support from the rest of educational system in terms of necessary training in teaching science, teaching aids/material, and most importantly an enabling and conducive environment, if the challenges of science education is to be met. In addition the national curriculum stresses that the science education should provide a framework at school level so that all the students should be:

- Knowledgeable about the important concepts of three major branches of scientific study: earth and space, life, and physical sciences;
- Able to think scientifically and use scientific knowledge to make decisions about real-world problems;
- Able to construct new knowledge for themselves through reading, discussion, and learning activities;
- Familiar with the natural world, and respectful of its unity, diversity, and fragility;
- Able to reflect in an informed way on the role of science in human affairs;
- Encourage students develop skills for investigating the living, physical, material, and technological components of their environment in scientific ways;
- Helping students to explore issues and to make responsible and considered decisions about the use of science and technology in their environment.
- Promoting determination of what students as global citizens should do in a particular context or in response to given situation”(National curriculum for Science Grades IV-V, 2007).

Therefore, students are desired to be actively involved in decision making situations by keeping in mind personal health, the environment, cost, and availability along with science and technology information.

#### **5.1.6 Content analysis of the primary curriculum**

A properly reoriented curriculum will address local environmental, social, and economic contexts to ensure that it is locally relevant and culturally appropriate (UNESCO 2006).

For content analysis examples and evidences are derived from the Punjab Textbooks. These books were published in 2010 and are approved by the Ministry of Education (Curriculum Wing) Islamabad and are used in all the public schools. **The text books for public primary schools were considered due to their uniformity in all the schools while, the text books used in private schools could not be reviewed as every school has a different set of text books but they follow the national curriculum to some extent.**

The content for curriculum analysis was selected reflecting the main characteristics of sustainable development including economy, environment and society. Initially it was undertaken to identify the content and actions for teaching and learning that enable teachers and students to build up their knowledge of natural resources and sustainable development. The following enlisted characteristics in curriculum for primary grades reflect the UNESCO principles as being indicative of educational action for sustainable development:

**Table 5.1.1 Indication of awareness and knowledge about nature and environment.**

Grades	Subjects	Contents
I	G. Knowledge	The Earth, The Sky, Daily Weather, Season of the year, Food, My Home, Neighbourhood, My School, Park, Playground, Plants and animals, Objects around us
II	G. knowledge	Blessings/bounties of God, Land , Water , Animals, Plants
III	G. Knowledge	The earth as living planet, Environment pollution, Changing in living things , Sun
IV	S.Studies	Globe, Maps
	Science	Environment and its components, Living things and their environment, Types of environment, Movement of the Earth
V	S.Studies	Physical regions of the world, Climate
	Science	Sources and kind of environment pollution, Classification of living things, soils

This analysis shows that there are considerable number of indicators putting emphasis on awareness of nature and environment. At primary level students are expected to learn and be interested in nature and environment. For example the curriculum points out that the humanity depends upon the nature and natural forces for the survival of humans. Therefore, knowledge of nature and natural phenomenon is thus vitally important for people (Science Curriculum, 2007). The element of relationship of all living things with environment can also be found in the lessons *Living things and their environment*, *earth as a living planet*, *physical regions of the world and climate*(National curriculum,2007). The content related to environmental pollution and soil fertility is included in the text book for grade V. The content related to environmental awareness found sufficient and gradually its horizon is widening from grade I to grade V.

**Table 5.1.2 Identification of knowledge contributing to sensible use of nature.**

Grades	Subjects	Contents
I	G. Knowledge	Park, play grounds, cleanliness, our neighbours
II	G. Knowledge	Use of the earth resources, Water in our lives, agriculture, conservation of earth resources, Natural resources and man-made objects
III	G. Knowledge	Human activities and natural habitat, Natural, Human and capital resources, Food and Nutrition, Making the world a better place,

IV	S.Studies	Weather, Natural disasters, population
	Science	Needs for living things, Characteristics of living things, sources and groups of food , food chain
V	Science	Environmental pollution, classification of living things, impact of biodegradable material and non-biodegradable materials on environment

The topics in the curriculum that were grouped within the characteristics that of *Identification of knowledge contributing to sensible use of nature* signify the possibilities of using the curriculum to follow the directions recommended by United Nations decade goals to take responsible decisions about nature. In the same context the curriculum for Science in primary grades states that students needs to have a basic understanding of natural science concepts so that they can apply them in their daily lives in order to make sensible decisions regarding the connections between human beings and nature ( Ministry of Education Pakistan ,2007). These selected topics encourage the students to observe and provide examples of how human activities have affected the nature, and to identify different points of interest. The aim of these contents has a clear association with the Brundtland definition of sustainable development that stresses the importance of the ability of future generations to meet their needs (Bruntland 1987). However, to suggest actions that can protect nature for future generations are not very innovative, and do not actively trigger questions of who should take these actions.

Secondly, in the content related to the “sensible use of nature” the element of using renewable and non-renewable energy resources is missing. Moreover, there is no discussion of why cutting down trees is a bad thing, or what consequences it has for the local and global environment. Moreover the content analysis shows that the curriculum of General Knowledge from grades (I-III) comprises of the introduction of environment. The concept of environmental pollutions is present in the curriculum of grade III while, the element of environmental pollution is not seen in Grade IV. Instead of developing critical thinking regarding the link between humans and environment, it provides a descriptive account of living things and their environment. Therefore, while affecting the continuity it also goes against the demands of spiral curriculum (as stated by National curriculum). While the phenomenon of environmental concerns are present in the curriculum of Science in grade V, where the textbook links the consequences of human actions to the planet by describing the use of biodegradable material and non-biodegradable material and their impact on the environment. The three topics in the text books do create a sense of social responsibility and

focus mainly on environmental responsibility such as keeping one's neighbourhood clean and reducing environmental pollution.

In relations to *welfare and public health* the curricula for primary school levels emphasizes a healthy life style, good food and habits of consuming food and cleanliness. The Science Curriculum for Grade IV and V are expected to foster a positive attitude towards a healthy life style for example, understanding of the *importance of nutritional food* which is continuity of the contents *awareness of personal health* and *causes of diseases* from early grades. The schools are expected to foster in a student a positive attitude towards a healthy lifestyle and should be aware of the responsibility that all the individuals have for their life and personal health. For example one of the main objectives of science National curriculum is to promote physical, spiritual and moral development of the students (National Curriculum Science 2007). There is no emphasis on adopting outdoor activities for the development of physical health of children.

Table 5.1.3 **Contents about moral values, welfare and public health.**

Grades	Subjects	Contents
I	G. knowledge	Healthcare, Awareness of diseases, Traffic rules,
II	G. knowledge	Protection from diseases, helping others, , Developing a good character
III	G. Knowledge	Balanced diet, Factors for healthy living
IV	S.Studies	Food and health
	Science	Introduction and functions of major organs of body, food pyramid balanced diet and its importance
V	S.Studies	
	Science	Disadvantages of micro-organisms, identifications of ways by which micro-organisms enter in human body, ways to avoid infections,

Table 5.1.4: **Indication of democracy and public participation.**

Grades	Subjects	Contents
I	G. Knowledge	People and society,
II	G. Knowledge	Rights and responsibilities of a government
III	G. Knowledge	Governance, District administration, the role of government and citizens, good citizenship.
IV	S.Studies	Government, Government institutions, Rights and responsibilities of citizens
V	S.Studies	Government institutions, courts, The constitution,

Considering *democracy; participations and action competence* at every school level, there is an emphasis on identifications and purpose of national, local, provincial and local government. This also includes developing understandings of the political and legal processes that are used to make decision, seek consensus and resolve conflicts (The Ministry of Education, 2007).

As one of the main objectives of the National Curriculum, students are to be proficient in dealing with ethical issues and enhance critical thinking and social skills, citizenship identity and respect for others. Students are also to have an understanding of society, so they can not merely understand and follow the rules, but also be active for purpose of having a social impact. For example, one of the main aims of the National curriculum for Social Studies for class (IV-V) is to identify ways in which conflicts are resolved at home, school and local community level and explain how they might be resolved if underpinned by core democratic values such as justice, equality and rights and responsibilities of citizens in a democracy. In Pakistan, citizenship education is integrated into Social Studies. The introduction to the curriculum emphasizes “developing [a] civic sense” through “traffic rules, environment and population” education; “concepts of rights and responsibilities”; the skills of critical thinking within “the context of Islamic heritage”; problem solving; and the “promotion of the feeling of national integrity, cohesion and self-reliance” (Ministry of Education, 2010).

Table 5.1.5: **Recognition of equality and multicultural and human rights issues**

Grades	Subjects	Contents
I	G. knowledge	The Earth
III	G. Knowledge	Making the world a better place
IV	S.Studies	Geography: our earth and people
V	S.Studies	Physical regions of the world, means of information, comparison (similarities and differences) the culture of Pakistan with that of another country

The curriculum of all five grades emphasizes learning about the respect for themselves and others, regardless of their origin, life views, language or religion. Moreover, diversity and multicultural characteristics of society are also part of curriculum. However, it does not provide the space to deal with the gender equality, in the spirit of the United Nations decade goals.

Table 5.1.6 **Indications of awareness and understandings of global issues.**

Grades	Subjects	Contents
I	G. knowledge	The Earth
III	G. Knowledge	Making the world a better place
IV	S.Studies	Geography: our earth and people
V	S.Studies	Physical regions of the world, means of information, Comparison (similarities and differences) the culture of Pakistan with that of another Country

There are few indicators that can be grouped in a theme of *global awareness*; nevertheless these are considered important as being a significant sign in the curriculum progressing towards ESD. In the part of geography the understanding of earth as a whole planet and understanding of different regions of the world are indications of enhancing the vision of the



students beyond their country. It is also expected that students realise that there are different cultural regions, customs and religions in the world.

Table 5.1.7 **References to economic development and future prospects**

Grades	Subjects	Contents
I	G. knowledge	Shop/Market
II	G. knowledge	Agriculture, use of earth resources
III	G. Knowledge	Natural, human and capital resources
IV	S.Studies	Choice of economic activities, the goods and services of local area
	Science	
V	S.Studies	Public goods and services, Trade, Import and export, Evolution of money, various ways in which income is generated, Banks
	Science	

The analysis showed that very little is found about economic development and future prospects. These characteristics are all about how children and teenagers should consider future prospects and future needs. The curriculum describes different economic activities but it does not develop the awareness of students as responsible consumer. Students will be able to explain the idea of scarcity which leads to the need of making choices regarding production, distribution and consumption of goods and services affect the wellbeing of the individual and society (National curriculum for social studies, 2007).

### **5.1.7 Teaching strategies**

ESD by nature is holistic and interdisciplinary and depends on concepts and analytical tools from a variety of disciplines. As a result, ESD is difficult to teach in traditional school settings where studies are divided and taught in a disciplinary framework. In countries where national curriculums describe in detail the content and sequence of study in each discipline, ESD will be challenging to implement. In other countries where content is described generally, ESD will be more easily implemented, although doing so will require creative teachers who are comfortable and skilled at teaching across disciplines (McKeown, 2002).

According to UNESCO, ESD pedagogies encourage teachers to shift away from traditional pedagogical approaches to those that stimulate students to ask questions, analyse, think critically and make decisions. Flexible learning strategies involving, for example, more student-initiated projects, field trips and extra-curricular programmes provide schools and school districts with greater degrees of freedom when integrating ESD in the curriculum (UNESCO 2013).

Hence it is recommended by researchers and UNESCO that all the concepts present in the curriculum should be taught through innovative and interactive teaching strategies. For this purpose the National Curriculum from Grade I-V proposed several strategies and helping resource material in the guide books for teachers such as:

- Lecture Method (by posing questions to the students, discussion with the students )
- Role-plays, Educational tours, Invite guest speaker

Use of resource material like:

Maps/Globes, Case studies, Encyclopaedias, Documentaries, Museums, Newspaper/ News magazines, Audio/visual aids with the help of projectors and multimedia.

All these teaching aids and strategies are significant for effective ESD learning, if these are practiced properly by dedicated and trained teachers equipped with resource material.

### **5.1.8 Conclusion and findings**

In Pakistan the formulation of the curriculum is the responsibility of the federal government and it is centralised especially at school level. At the same time, according to the Curriculum Wing the approach of this curriculum is student centred and it is an outcomes-focused curriculum. In revised National Curriculum 200, efforts were made to transitions to education for sustainable development by introducing many concepts related to ESD. There is an emphasis on interactive teaching methods which are multi-sourced and multi accessed (Mirza, 2010).

It is evident from the above content analysis that the primary school curriculum embraces the most of the issues related to the ESD without mentioning the term of sustainable development for the awareness of both teachers and student. The contents present in the primary curriculum were grouped following United Nations goals. According to Memon (1999) sometimes curriculum developers fail to address the issues such as what to teach: how to teach and when to know whether the purpose of teaching is achieved. In the context of Pakistan, the curriculum developers seemed to be good at seeking an answer of question i.e. what to teach to some extent rather than seeking answers of the above four questions. The social studies curriculum for primary grades provides information wrapped in social, economic, cultural context relevant to young people. However, strikingly little attention is given to environmental concerns; understanding related to environment is present in the sections on weather, climate and vegetation.

Overall, the natural science curriculum provides little evidence of the problems of sustainable development and lacks a global perspective. While the topics related to awareness of environment are present to some extent. The objectives and the competence aims seem to be more focused on “basic knowledge” and not necessarily on how this basic knowledge can be applied to relevant issues in the real world. In the learning outcomes the approach for teaching focuses on explaining instead of engaging in critical thinking in the field of natural sciences. In other words the aims are more focused on to learning process instead of encouraging active engagement.

Moreover, the observations of curriculum seem lacking in providing opportunities for debating certain actions aiming at utilizations and production of energy resources of Pakistan. As Pakistan is facing a short fall of electricity there is no argument of using natural gas and electricity sensibly and production of electricity from other natural resources such as, wind and solar energy. In other words, the developmental aspect is largely missing. The content related to the environment appears at the back of the books - not as a part of defining framework. In short, the textbooks and curriculum fail to link the topics of society and economy such as growth or poverty to global concerns that ought to be highly relevant to young people. However, to suggest actions that can protect nature for the benefit of future generations is not very innovative.

Following to the three models for ESD as mentioned by Scott and Gough (2006), the content analysis links sustainable development education in Pakistan to Model I, ‘Education *about* sustainable development’ because content provide awareness rather than generating knowledge through critical action and development of active and critical citizenship. This situation is unsatisfactory as one of the many goals for the Science education and Social Studies in schools regarding sustainable development education is to prepare students to critically address social, economic, ethical and environmental issues related to science and technology. With the addition of this goal among many other goals in the Science curriculum a shift in the methodology for teaching was also proposed by national curriculum. So the curriculum is transferred from the traditional teaching methods to inquiry-based and constructivism approach (McKeown, 2006).

## **CHAPTER FIVE (II)**

### **Education for Sustainable Development and Initial Teacher Education (ITE)**

#### **5.2.1 Introduction**

In seeking to establish the extent to which ESD has been adopted in the education system in Pakistan, and in the curriculum in particular, it is important to understand the nature of teacher education, especially in the initial phase. This section reflects on key ITE programmes (B.Ed. Honours elementary and secondary for teachers training programmes) which have been designed to ensure ESD through teacher education. As stated earlier in chapter two, the programme of B.Ed (Honours) has been recently introduced in Pakistan with increased duration and a new curriculum to make teacher education more efficient, effective and compatible with international trends.

No education system can be imagined without teachers. According to Sadruddin (2013) teachers play an important role in meeting global challenges. They have responsibilities on their shoulders to transform the world through their way of teaching skills to students in a positive way. The demands of the 21st century have added new challenges on learning in schools. The world is full of contradictory trends and tensions, such as globalisation, regionalisation, value conflicts, social inequities and environmental pressures (Khan, 2013). These challenges also affect the teacher education, teacher professionalism and its policies. According to Tye (1991, p 48), “Global education involves learning to understand and appreciate our neighbours with different cultural backgrounds from ours; to see the world through the eyes of others; and to realise that people of the world need and want much the same thing”.

In the present era of competition, survival has become an increasingly daunting challenge and current trends towards teacher education are strongly influenced by economic globalisation forces (Tatto, 2007). Pakistan is also attempting to become competitive in the global market place and trying to shape its education system to provide skills needed in the growing economy. In recent years however, education authorities have tended to develop a system of educational provision and reform in initial teacher education. ITE also requires more uniform patterns of training and change in curriculum, so that it corresponds to national and international quality standards (Eurydice, 2002).

Teacher education institutions are supposed to develop their role to accomplish education for sustainability (UNESCO, 2012, p.5). According to Mirza (2015) higher education in general and teacher education in particular must play its role in promoting sustainable development of the societies that includes intergenerational equity, gender equity, peace, tolerance, poverty reduction, environmental preservation and restoration, natural resource conservation, and social justice. By following the agenda of UNESCO and international demands for ESD, it became very purposeful to explore the content relevant to ESD in Initial teacher education curriculum and in National Professional Standards for Teachers (NPST).

### **5.2.2. Education for Sustainable Development and curriculum for B.Ed Honours**

In reviewing the curriculum of B.Ed Honours, for this study, four major features appeared. One is the focus on the English language, the medium of instruction is English, and all recommended resource materials for courses other than Islamiyat and Urdu are in English. The second is that in this new program student teachers study Foundations courses of education, content (subject specialization), as well as methods, within one plan of studies and they get only a single degree certificate at the end. The third major feature is emphasis on the use of technology. There are two compulsory courses, (i) Computer Literacy (ii) Information and Communication Technology (ICT). All course guides support and recommend the use of internet resources, which signifies the learning of computer skills required for teaching and learning through revised curriculum. The fourth major feature is the duration and frequency of the teaching practicum. In the old programs, there was six to eight weeks of practice teaching at the end of the program, while in the new plan of studies there are four different sessions when student teachers go for short-term and long-term practice teaching. There are many other methodological changes proposed in curriculum for the professional development of teacher educators such as use of ICT and interactive teaching strategies in class rooms.

The teacher education curriculum needs to provide the basic knowledge and conceptual understanding of ESD in order to develop the relevant skills and attitudes in student teachers. For this purpose, a comprehensive, dynamic and responsive system of teacher education programme needs to be continually evolved (Khan, 2013). Generally, the curriculum for B.Ed (Honours) designed/approved by Higher Education Commission (2010) emphasizes the competence of the teacher in the content areas as well as in pedagogy in order to ensure achievement of expected student learning outcomes (Akbar, 2013). Moreover, the focus of

the new programme is to prepare prospective teachers for more learner-centred environment, and use of activity based teaching in the class rooms.

ESD is not found as single discrete subject in the curriculum of the B.Ed Honours programme rather the contents constituting ESD have been infused in different subjects as appears in the national curriculum for schools. UNESCO (2006, p. 3) explains the idea of infusion by stating that “Infusion refers to the integration of content and skills into existing courses in a manner so as to focus on that content (and/or skills) without jeopardizing the integrity of the courses themselves.”

Most of the material relating to ESD is found in the subjects of Teachings of General Science, Teaching of Pakistan Studies, Art and culture, and Teachings of Social Studies and Environmental Education. For instance one of the major objectives of Pakistan studies reflects the social aspect of ESD as a responsible citizen it goes on:

“The course will provide opportunities to the prospective teachers to enhance their content knowledge in disciplines that form the core of Pakistan studies; to critically examine the content; to broaden their vision and understanding of society, democratic citizenship, respect for cultural diversity and religious harmony; to develop their range of skills such as information gathering and processing, map reading, critical thinking, decision making, problem solving, communication and presentation skills; and to explore values and dispositions such as commitment to the common good and justice, to social responsibility, action and develop personal qualities like self-esteem, confidence and initiative and risk taking.”(MoE, 2012, p11. 7).

A brief review of the curriculum for all the subjects will demonstrate the presence of ESD relevant themes in the curriculum.

### **5.2.3 Review of ITE (B.Ed Honours) curriculum for ESD**

In 2006, the Higher Education Commission (HEC) of Pakistan began the development of a four year B.Ed. (Honours) Elementary degree consisting of core courses in supervised field experiences/internships in schools, and content courses to develop subject-matter proficiency in at least two disciplines. This section illustrates the ways in which a variety of curriculum themes may be recognised to integrate an interdisciplinary emphasis on a sustainable future. The analysis was undertaken by focusing on three major social, economic and environmental issues. According to Agenda 21, understanding and addressing these issues are the heart of

ESD and locally relevant issues should be included in any program related to education for sustainability (McKeown, et al. 2002). There are certain features focusing on social perspective, economic perspective and environmental perspective, which is constituent of ESD can be explored in ITE curriculum. The detail of these topics can be seen in appendix.2 of the study.

#### **5.2.3.1 Political and social perspective**

In Pakistan social change is the need of hour, our society is shattered, terrorism and extremism has been penetrated in our society, therefore, a teacher can play vital role to bring social change through education (Jumani, 2015). It is believed that teachers are the most important agents of change responsible for growth, development and progress of societies and communities (Mangal, 2002).

While analysing the curriculum to highlight the social and political perspective of ESD, issues of human rights, equality, culture and governance are being explored. These issues have been discussed in subject of Teaching of Social Studies in B.Ed Honours (elementary) curriculum, while the contents on gender disparity is found in the subject of “Contemporary issues and trends in education” in B.Ed Honours (see appendix 2).

It is important for prospective teachers to gain adequate insight into the ground realities of school and classrooms through their attachments in schools and communities. Therefore, in the course of ITE in schools, student teachers identify how culture, gender, special needs, equity and equality and collaborative working conditions affect the school and community (HEC, 2012, p. 207). Cultural perspectives around the world vary from country to country and culture influences all aspects of life, of which education is just one. Education is considered a key element in the transmission of Pakistani culture. Teacher education is necessarily both a manifestation and a reflection of culture (UNESCO, 1999). The analysis shows the insufficient presence of content under the topic of ‘Culture’. These are discussed very briefly under the topics of “the dynamics of culture, multiculturalism, civilizations, multiculturalism and its implications”. Moreover, the element of sustainability of indigenous culture is neglected. According to (UNESCO, 2010, p. 11) “formal education systems have disrupted the practical everyday life aspects of indigenous knowledge and ways of learning, replacing them with abstract knowledge and academic ways of learning. Today, there is a grave risk that much indigenous knowledge is being lost and, along with it, valuable knowledge about ways of living sustainably.”

Therefore, the curriculum must encourage the teachers and students to gain enhanced respect for local culture, its wisdom and its ethics, and provides ways of teaching and learning locally relevant knowledge and skills (UNESCO, 2010). Understanding of the impacts of population growth is found in B.Ed elementary, while the health issues under the topic of HIV/AIDS and Hepatitis is present in B.Ed Honours secondary.

#### **5.2.3.2 Economic perspective**

The review of the curriculum highlights that the teachings related to economics is discussed in teaching of Social Studies. It is vital for teachers to know how to teach students to be able to make predictions and decisions, or in other words how to make economic analysis.

Important sectors of economy (Industry, Trade) are discussed in Pakistan Studies but it is not linked with global economy or with phenomenon of environment. Sadruddin (2013) supports it by stating that the phenomenon of impact of global economy on local economy is not discussed in ITE curriculum, as our country is facing economic crisis.

Importance of agriculture in the economy of Pakistan is presented again without linking it to impacts of agricultural activities on environment. Population education is also an important part of economics as it teaches the relationship between humankind and resources in terms of demand and supply. The population explosion is among the hot global issues in the analysed curriculum. This topic is discussed in the subject of “contemporary issues and trends in education”, it contains the impact of population growth on national development. However, it does not receive its due weightage and share.

#### **5.2.3.3 Environmental perspective**

The subject of Environmental Education in B.Ed Honours programme (secondary) is offered as an elective/optional course of three credit hours. Therefore, it is evident that some students may or may not opt for it, thus the impact would be limited. Nevertheless many issues related to ESD are present in the subject of “Contemporary Issues and Trends in Education” as individual units including: Gender Disparity, Population Education, environmental issues, natural disasters and Disaster Management. While learning for recycling, a significant activity associated with environmental education is taught in the subject of Art & Calligraphy (see Appendix 2). According to Higher Education commission the curriculum of Art & Calligraphy prepare a variety of objects for use in an elementary grade classroom, using junk or recycle-able materials (HEC, 2012, p 134).



#### **5.2.3.4 Global perspective and use of Technology**

Global citizenship is an emerging issue, realising that we all are a part of this planet and equally responsible for what happens around the world. Teachers must teach students how all the people might change their lives and they can participate in making a safer, prosperous and sustainable world (Sadrudin, 2013). The observations of the curriculum show that an important topic of globalization is among the neglected areas. Although, the topic “*building global connections through geography*” is present but it is not sufficient to meet the needs for global citizenship.

The education system in a country cannot be isolated from the education systems of other countries. Keeping in view the requirement of equivalence in the global world, it is important to compare the education system of Pakistan with other developing and developed countries. Knowledge about education system of various countries assists policy makers to reflect on the education system in the context of competition and excellence. It is, therefore, important that the teachers are aware of the objective, curricula, teacher education, admission criteria and staff recruitment requirement of the education system of developed and developing countries. The global concept of curricula is increasingly transforming from static to a dynamic document, which is partially observed in the teacher education curriculum in Pakistan (Mirza, 2010).

UNESCO (2008) pointed out that there is a dire need to improve the quality of education in Pakistan. Teacher education institutes need to develop research skills. Teachers should be technology friendly and feel no hesitation in the use of technology for interacting with the world. They should have enough knowledge and skills to reflect, critique existing norms and methods and contribute for the improvement of teacher education.

Courses for information and communication technology are being introduced in the revised curriculum of ITE. After completing these courses the teachers will participate in local and global learning communities to explore creative applications of technology to improve student learning” (HEC, 2012 p.158). This course contains, use of the internet, use of multimedia and use of innovative games and puzzles to enhance the learning. UNESCO (2010) supported the same idea noting that teaching of IT encourages students to critically engage with issues of design technology, recognising the need to develop awareness of

diversity and different cultural perspectives, and for students to see themselves as proactive global citizens, able to engage with innovation and creativity.

However efforts to promote ICT could only be fruitful if there is assurance of availability of certain resources such as computer lab and internet facility in the teaching training institutions and in the schools as well. ADE and B.Ed Honours are very new initiatives which need more coordinated efforts and policy reforms at national and provincial level to ensure the inclusion of ICT programs into teaching profession (Mirza, 2010).

#### **5.2.4 Teaching strategies**

It is important for prospective teachers to gain sufficient insight into activity based teaching strategies through their learning at teacher training institutions. Several researches have also found that teachers develop and possess their beliefs about different aspects of teaching on the basis of their experiences as student, as pre-service trainee teachers and through her/his in-service professional development activities and they bring these beliefs and experiences to classrooms (Joram and Gabriele, 1998; Anderson, 1995; Wubbels, 1992; Zeichner and Gore, 1990; Kagan, 1992; Marso and Pigge, 1989; Mertz, 1991; Clark, 1988). As mentioned earlier ESD can be introduced by adopting a cross-curricular approach, so all teachers regardless of their subject should participate in developing ESD. Therefore with insufficient preparation and training teachers could not be able to carry out this task. In the context of teacher training, ESD stresses on action oriented approach with emphasis on active, hands-on discovery method with emphasis on learning by doing, exploring, problem-solving etc. (Khan,2013).

The researches on education in Pakistan indicate, achieving the aims of education in Pakistan in general countered by over-reliance on didactic teaching strategies. These include using textbooks as the only resource of learning for the both the pupils and teachers. As a consequence, pupils have limited opportunities to practise any activities. Pupils' learning is assessed by their ability to memorise the information and knowledge that helps them to pass the exams (Mohammed, 2004; Ali, 2008).

The national documents of curriculum emphasize on progressive teaching strategies such as: discovery learning, learning in groups, applications of abstract ideas, analysis, synthesis and critical thinking in order to meet the expectations of policy makers of the educational policies. Therefore, the adaption of progressive approach is always encouraged in policy

documents. The Higher Education Commission of Pakistan with the collaboration of USAID planned to align the current teacher preparation program (BED Honours/ADE) with the new education reforms. The new education system is focused on using student-centred teaching strategies. Moreover, according to B.Ed Honours Curriculum, numerous opportunities and strategies for learning can be enhanced through use of information technology. It describes as “teachers-in-training and instructors should integrate this course with other courses and with their theses or projects; adapt the course to personal interest, knowledge, experience, and responsibility; and design assignments with sufficient depth and breadth to be useful in other courses and later work” (HEC, 2012 p 15).

On the other hand there is a tension between the aspiration model and ground realities. According to HEC “Serious imbalances have been observed between the skills generated by the teacher education programme and actual needs of the classrooms and schools. The main objective is enabling teachers to help all students in raising their level of achievements irrespective of their circumstances” (HEC 2012 p.134). The Higher Education Commission of Pakistan has established a set of National Professional Standards for Teachers (NPSTs) for teachers to enhance the standard of teaching and learning. A brief review of these standards will reveal that to what extent the establishment of these standards are concerned with ESD.

### **5.2.5 National Professional Standards for Teachers (NPSTs) in Pakistan and ESD**

In 2009 the Higher Education Commission (HEC) established the National Accreditation Council for Teachers Education (NACTE) with the cooperation of UNESCO and the financial support of USAID. This institution is responsible for establishing the standards in education, implementing and monitoring particularly, in teacher education. These standards outlined a “vision of the qualifications Pakistan expects of its teachers. These expectations need to be of national concern because teachers are the heart of the nation’s efforts to assure a better future for all children and youth” (UNESCO, 2009).

It would be very significant to explore the National Professional Standards for Teachers (NPSTs) in Pakistan associated with the requirements of ESD. The NPSTs (Government of Pakistan, 2009a) are although deficient in many ways on ESD but include a number of relevant key elements as mentioned:

- Teachers have knowledge and understanding of the need for national and global peace, the factors affecting peace and the negative impact of prejudice,

discrimination, social class, gender, race, and language on the moral development of students and society.

- Teachers value and are committed to respect the individual and cultural/religious differences, promote tolerance and dialogue as a means to conflict resolution and create a learning community in which individuals and their opinions are respected.
- Teachers build relationship with parents, guardians, families, and professional organizations in the community to support student learning.
- Teachers participate as active, responsible members of the professional community and engage in reflective practices pursuing opportunity to grow professionally.
- Teachers make efficient use of information communication technology (NACTE, 2009).

The adoption of professional standards for teaching marks a significant milestone in the development of the teaching profession but, as noted above, ESD is not explicitly referenced. In contrast, in a more developed system such as in Scotland, the GTCS Professional Standards were revised in 2012 to include ESD and to constitute Learning for Sustainability as a core component. In order to teach at a Scottish school, a teacher must be registered with the GTCS. In order to register, a teacher must demonstrate that they meet the professional standards. All teachers must maintain their registration by re-accrediting every five years. As a result, all teachers are expected to 'actively embrace and promote the principles and practices of sustainability in all aspects of their work' (Buckler, 2014). There are seven universities in Scotland that have teacher education programmes and these must be accredited by the GTCS in order for graduates to be eligible for registration as teachers. These courses have to seek re-accreditation every five years by demonstrating how they equip their graduates to meet the Professional Standards.

#### **5.2.6 Findings and conclusion**

This review has shown the main features regarding significant teacher education and presence of content in the curriculum and activities in ITE. The policy documents state that reforming ITE is essential to equip the students with knowledge and skills and competent enough to cater the basic requirements for learning.

After reviewing the curriculum for B.Ed (Honours) Elementary and Secondary, it appears that the policy of HEC mainly focuses on professional development, with few references directed to the development of ESD. These programs include some of the topics related to

ESD these are not sufficient to meet the requirements. This was also observed by Mirza (2010) who noted that:

“The issues related to ESD in initial teacher education need more detail and attention as these have not been seriously addressed, which might influence the effectiveness of these teaching programmes, especially in the area of ESD. All the issues that were located as the integral part of ESD in different subjects have inadequate material for study.”

The targeted issues found in the curriculum based on the key principles of ESD including health and prevention, education against HIV/AIDS and other infectious diseases, life skills based education, environmental education, population and development education, human rights education, disaster and risk management, peace education, interfaith harmony, Information and communication technology.

The main features of ESD in curriculum for teacher education are as follows:

- Interdisciplinary in approach, drawing specific content of each discipline in making possible holistic and balanced perspective.
- Considered the environment related issues, although not been discussed in totality, natural and man-made, economic, ecological, social, political and cultural aspects.
- Conservation of life support system on land, forest and water.
- Develop the sense of citizenship, good governance and the improvement of quality of life of people irrespective of their socio- economic status.
- Developing skills to establish closer school- Community contacts.
- Understanding of people, and economic development is found nevertheless the ecological consequences of economic development is missing and environmental protection cannot be considered in isolation.
- Promoting values such as respect for nature, sharing of resources, reduction in the use of natural resources, recycle of resources, reuse of wastes, renewable and ensure wise use of non-renewable resources, appropriate use of alternate technology, living together, etc. with local examples.
- Designing and conducting of projects, activities and case studies in local contexts.
- Protect endangered species and wilderness for the sake of survival, aesthetics and recreation.
- Consider the natural resources as components to conserve in order to realize that they will return more in the long run if we do not over exploit them now (Khan, 2013).

- Element of a sense of global connectedness is very weak. Along this, there is hardly any focus on making teachers efficient in improvising and creating low cost learning aids. Familiarity with use of modern information and communication technologies is also not given due importance (UNESCO, 2008).

However completely neglected areas are rural development, characteristics of global citizenship, corporate responsibility, water conservation and use of energy resources. The national curriculum suggested a number of interactive and student centred teaching strategies although these are not directly addressing to ESD but indirectly as being a cross curricular phenomenon these strategies are useful for the teaching of ESD as well. Moreover, these recommended strategies, orienting teachers and student teachers with planning, designing and conducting of projects, and also the use of ICT to make the learning more informative and interesting. Therefore it is a blend of content and pedagogical courses. According to a critical review of ITE by Tahir and Taylor (2013) however, in the ITE curriculum, there is large emphasis on the use of innovative teaching strategies i.e. peer tutoring, collaborative learning and group work, but in actual ITE practice, student teachers are not exposed to these strategies. The empirical research in next two chapters will reveal this deficit by exploring the challenges faced by the student teachers, teachers and head teachers and how these will overcome.

Table 5.2.1: **Summary of content analysis of B.Ed Honours for ESD**

Present	Less emphasis	Absent
Environment education including population education, disaster and risk management, peace and interfaith education.	Conservation of natural resources, use of renewable and non-renewable resources.	Protection of endangered species.
Economic activities in a society.	Designing and conducting of projects, activities and case studies local context.	Ecological consequences of economic development.
Health and prevention, education against HIV/AIDS and other infectious diseases.	Development of sense of citizenship good governance and improvement of life of people.	The phenomenon of impact of global economy on local economy.
Life skills based education, environmental education, population and development education.	Cultural diversity	Sense of global connectedness
Human rights education, disaster and risk management.		Creating low cost teaching aids
Peace education, interfaith harmony		Rural development, characteristics of global citizenship, corporate responsibility,
Information and communication technology use of internet, use of multimedia and use of innovative games and puzzles to enhance learning.		water conservation and use of energy resources.

## **CHAPTER SIX**

### **Field observations and analysis of structured questionnaire data**

#### **6.1 Introduction**

This chapter deals with the field observations and data collected through questionnaires. To gain a clear idea for establishing my analysis, during the field study I kept on taking field notes on observations of the institutions as well as collecting the data through questionnaires and interviews. These field observations supported the key results obtained by literature, curriculum study and field surveys. The opportunity to observe the teachers during their free time, classroom instructions, and other activities helped to analyse more deeply how the enacted curriculum was being interpreted by individual “actors” at the institutions (Yanow, 2000).

#### **6.2 Infrastructure of the institutions**

In Pakistan In terms of physical facilities not all the public schools are the same and, likewise, variations among private schools are also present. These variations definitely affect the process of teaching and learning to some extent. Das, et al, (2006) also believe that it is observed that variations in learning are driven by differences across schools in same city. Agreeing with this the condition of the infrastructure of the institutions was also observed.

As stated earlier both private and public primary schools were parts of the field study along with the institutions of teacher education. All the institutions which were involved were visited twice and two institutions requested more than two visits due to busy schedules of head teachers. These visits provided the opportunity to observe the physical conditions of the institutions and impact on learning and teaching processes.

I visited schools a few days before summer vacations and the students and teachers were found in an uncomfortable situation as the electricity supply disconnects after every hour for an hour, in the temperature 40-45 Celsius. During a visit in public school I found only one fan was working in the head teacher’s office during a power failure, working through solar energy. On inquiring the head teacher said that this solar panel had been donated by a student and she received it from the provincial government as a reward on getting good marks in grade V exams.

Apart from an inadequate energy supply, public schools and low income private schools have unsatisfactory infrastructure. The class rooms especially, in public schools were over crowded with no proper furniture for the students to sit on. While visiting five of the public schools considered for the study, two of schools were in worse conditions with students were sitting in corridors without any furniture and fan in scorching heat due to inadequate classrooms. Ahmed (2013) mentioned the same kind of situation by stating that some schools in rural areas in Pakistan do not have basic facilities such as washrooms, inadequate classrooms and insufficient furniture, compelling the students to get their education under trees.

In contrast three of the private schools I visited were well resourced with clean and well-furnished classrooms with play grounds for students. These schools are charging high fees and the majority of the staff are qualified up to graduation and post-graduation levels. These schools have also arrangements for the training of teachers working in their schools. In private sector two types of schools can be found called high income schools and low income schools. The low income private schools are large in number and these are built in small plots, sometimes working in residential houses. Most of the teachers working in such schools are not well qualified and without any teachers training. Moreover, school administration does not offer any in-service training. In contrast nearly all the public schools have large school areas although most of them, as stated earlier have with insufficient classrooms and under are resourced. A majority of the teachers in public primary schools have twelve years of school education, with one year of a teacher training course. In 2010 the government of Pakistan has changed the policy of hiring teachers in all public schools and according to this no teacher can join the teaching profession without B.Ed degree and in future it will be replaced by B.Ed Honours degree.

### **6.2.1 Use of technology in classrooms**

In keeping with the widely acknowledged significance of use of technology in class rooms for ESD by many researchers like, Hopkins (2005), this became an element of observation during the field study. In public primary schools there was no internet and computer facilities for primary grades students. Only in one private school out of the schools involved in this study was it possible to observe a computer lab for students use. The institutions for teacher education (ITE) were found to be equipped with computer lab, internet facilities and projectors for class rooms.



### **6.2.2 Informal conversations**

During the field visit the informal conversations with the teachers, head teachers and especially with the students helped me a lot in analysing the data. An interesting observation I noted that some of the respondents (head teachers) were talking before and after interviews more freely. This could be either the effect of audio recording. Corbin and Strauss (2008) have given two different reasons for this. One is that through the interview the respondents come to realize things that they never thought about. Second, if there is some “sensitive information” that they do not want to be audio recorded. Informal sessions of conversations with the teachers were very helpful because they came up many ideas and concerns during the completion of the questionnaires and they expressed their view after finishing with their questionnaires. They expressed concerns and difficulties according to their present status and backgrounds. The views of participants were sought through a set of questionnaire and the next section will present the results of data collected from teachers and student teachers.

### **6.3 Analysis of structured questionnaire data**

This main section of the chapter presents the analysis of data obtained through the questionnaire that was administered to student teachers (STs) and primary school teachers (PSTs) both from public and private schools. As noted in chapter four this was the target group for questionnaire survey, since the teachers are the real constructors of curriculum while translating the guidelines into curricular activities. Acknowledging the powerful role of teachers in ESD the United Nations Decade of Education for Sustainable Development challenges teachers to reorient education throughout the world ‘to develop the knowledge, skills, perspectives, and values which will empower people of all ages to assume responsibility for creating and enjoying a sustainable future’ (UNESCO 2004). Given such a mission, education for sustainable development (ESD) represents an ambitious, complex and broad in scope educational reform that presents significant intellectual, pedagogical and strategic challenges for teachers to enact (Stevenson 2007).

The degree of success to enact ESD strategies by teachers in different countries of the world is different. Therefore, a set of questions was applied to get a brief overview of the learning and teaching practices for ESD in Pakistan. The questionnaire was used to explore perceptions regarding sustainable development education of STs of B.Ed Honours programme and primary school teachers who were mainly from two cities of Punjab, Pakistan. The questions in the questionnaire addressed:

- several components of ESD such as understanding of ESD, the main functions and goals of ESD;
  - the skills important for ESD and the appropriate teaching strategies to deliver ESD;
  - the barriers or constraints that hinder the process of adoption of ESD in teaching and learning activities;
  - suggestions and ideas to promote ESD amongst other teachers.

The data obtained through the questionnaire was analysed according to the two categories of the sample, the student teachers (STs) and teachers. The data was analysed through SPSS software. This software was appropriate for the analysis of responses on a likert scale. Percentages and Mean were applied to get overall results of the perceptions of the participants regarding different aspects of ESD. `

First of all, a general description of the sample of the study was provided detailing the type, size, and demographic information of the participants, followed by the statistical analysis. After demographic and factual questions, the rest of questionnaire had a composite design including dichotomous, multiple choice, rank ordering and rating scales. This design of the questionnaire was used in different sections to fulfil the objectives of the inquiries (as noted in chapter four).

### **6.3 Demographic analysis of the sample**

The questionnaire was administered to a sample consisting of STs (student teachers) and primary school teachers. The demographic information of each sample was presented in terms of gender, institutions, and specialisation. The data shows that, of the student teachers (STs) who responded to the questionnaires, 13 were males and 37 were females, totalling 50. All the STs belonged to the two different campuses of the University of Education Pakistan. The students who were enrolled in B.Ed Honours programme were selected because one of the courses within the programme is about Environmental Education (details of this course can be found in the section of curriculum review).

The sample of teachers comprised of teachers who were teaching primary classes both in primary and in public schools. In the public schools the class teacher generally teaches all the curricular subjects. The same practice was observed in many private schools as well. The Ministry of Education in the province of Punjab has prescribed a new subject of General Knowledge in the curriculum for class I-III in which all the topics related to religion, science and social studies are included where the topics related to ESD can be found (see chapter 5).

However the subjects of science and social studies are included in the curriculum for class IV-V individually.

### 6.3.1 Teaching experience

The number of teachers who participated in the study from public schools was 28, while 22 teachers from private schools participated in the process of data collection. As Table 6.3.2 shows the length of service of private school teachers is less than that of teachers in public schools. The mean experience of the public school teachers is 12 years and the mean experience of the teachers from private schools is 2 years. This may be caused by the difference in incentives. Teachers prefer to be employed in public schools due to pension facilities and many other incentives such as promotions. For this teachers teaching in public schools perform their services on permanent basis.

Table. 6.1 **Teaching Experience**

<b>Institution</b>	<b>N</b>	<b>Mean(Experience in years)</b>
Public	28	12
Private	25	2

### 6.3.2 Qualifications

The teachers' level of qualification plays an important role in the process of successful teaching. Participants from both groups (private STs and public STs) were asked to record their qualifications in the demographic section of the questionnaire. The data showed that the majority of the public school teachers who participated in the study have teacher training degrees while the majority of the teachers in private schools who participated in the study do not have any professional degree in teaching. These results present the fact that one must have a degree of B.Ed or M.Ed for joining the teaching profession in public sector schools as recommended in education policy 2010. On the other hand it is not compulsory for the teachers of private schools to have a professional degree in the field of teaching.

Table 6.2. **Qualification of private school teachers and public school teachers:**

	<b>M.A.B.Ed</b>	<b>B.A.B.Ed</b>	<b>B.A</b>	<b>M.A</b>	<b>M.sc</b>	<b>Other professional</b>
<b>Private School Teachers</b>	0	2	2	8	5	8
<b>Public School Teachers</b>	8	11	8	1	0	0

## 6.4 Understanding of the term 'Education for Sustainable Development'

This section presents the perceptions of student teachers and school teachers regarding understandings of ESD, aspects of ESD that can be used to define ESD, the approaches to

introduce ESD in the classrooms, the goals of ESD, the important skills and strategies for teaching the concepts of ESD.

#### 6.4.1 Analysis of awareness of ESD

According to the topic of the study understanding the Environmental Education (EE) was required before exploring the knowledge about Sustainable Development Education. This was done because the concept of ESD emerged through EE therefore, first part of the questionnaire inquired about knowledge of Environmental Education. Nearly all the participants (100% of all public and private teachers and 94% ST) expressed their positive awareness about EE.

The next question was to determine the knowledge about ESD among teachers and student teachers (STs). This data shows that 0% public ST, 8% private ST and 36% student teachers had heard about the ESD. It presents a clear difference of having the knowledge between EE and ESD.

The data gathered is illustrated in the Table below.

Table.6.3 **Awareness of ESD**

Understanding of ESD	Public School teachers	Private School teachers	Student Teachers
Do you know about environmental education?	28 (100%)	25 (100%)	47 (94%)
Do you know about Sustainable Development Education	0 (0%)	2(8%)	18 (36%)

These results are not satisfactory in terms of level of familiarity for ESD among teachers and student teachers. However it is believed that the teachers' knowledge and understanding of environmental issues are the first step towards the understandings of ESD. It is found in the literature that Environmental Education is not a separate branch rather it is a part of sustainable development education and ESD is regarded as the new generation of environmental education (Hasselink et al., 2000).

#### 6.4.2 Meaning of ESD

Student teachers and teachers may already be familiar with the components of Education for Sustainable Development during their academic career, though not necessarily having encountered it by that name. It was revealed through the pilot study that the term Education for Sustainable Development is quite new for the participants. This aligns with the research in literature (chapter three II) where several researchers found that student teachers and in-

service teachers from preschool to primary and secondary education, do not understand the conceptual meaning of the term “Sustainability”, or they are unfamiliar of the term “Sustainable Development” (Barberi 2005; Jucker 2002; Karameris et al. 2006).

Therefore, in the start of the questionnaire, two definitions of ESD were given regarding different aspects of ESD in the questionnaire. The purpose of presenting these definitions was to provide a clear idea of sustainable development education among participants and these definitions were also given so that the participants would be able to give responses for the further asked questions in the questionnaire.

Table 6.4 highlights the perceptions of teachers and student teachers regarding the meanings of ESD. Generally speaking, the results show agreement among school teachers and student teachers on the meanings of ESD. The majority of the participants of all three groups (Public STs 98%, Private STs 88%, STs 87%) ticked on the item “all of these”. Interestingly all the participants considered environmental education as the meaning of ESD. It means they agreed that ESD means the education for environmental protection, education for conservation of economic and social values and education for patriotism. They did not provide any further meanings of ESD because none of them chose “None of these”. These results mean that all the participants are agreed that ESD is multifaceted concept with a major focus on environmental education.

**Table 6.4. Meanings of ESD**

NO	Sustainable Development Education means:	Public School Teachers	Private School Teachers	Student Teachers
1	Education related to environmental issues	28 (100%)	25(100%)	50(100%)
2	Education for the set of conservations of economic & social values	17 (33%)	20 (83.6%)	16 (31%)
3	Education for patriotism	17 (33%)	15 (68.1%)	15 (30%)
4	All of these	27 (98%)	22 (88.3%)	44 (87%)
5	None of these	0	0	0

## **6.5 Understanding of aspects of Education for Sustainable Development:**

Education for Sustainable Development encourages different disciplines to enter into dialogue, make connections, share knowledge, and work together on emergent areas. According to UN, at the end of Decade for Sustainable Development (2004-2014) education for sustainability ‘embraces environmental concerns as well as issues such as the fight against poverty, gender equality, human rights, cultural diversity, and education for all (Carr,

2016). Therefore, this part of the questionnaire was devoted to discussing different aspects of learning that deals with ESD.

Table 6.5 shows the difference in perceptions of all three groups is slight. The results show that 100% of public and private school teachers and 98% of student teachers tend to view that learning to take care of the environment and that the learning for economic development are constituents of ESD. The researchers like Lee (2001); Sandberg and Årlemalm-Hagsér (2011) also indicated the same kind of results after investigating the teachers. They found that teachers understood ESD as teaching children facts about the environment. The link between Education for Sustainable Development and values education was emphasized by UNESCO (2003) where ESD was described as fundamentally being about values of respecting others, diversity, the environment, and the earth's resources. All teacher participants in this study agreed upon this notion. A small number of participants from all three groups (Public ST 14%, Private ST 12% ,STs 22%) were undecided about whether this should include "learning to develop social values" and "learning to know about shared values" among the key aspects of ESD, although rest of the participants agreed with them.

The second statement dealt with 'economic development' as an important aspect of the ESD, in relation to this majority of participants from public schools and private schools agreed that economic development is among the key aspects of ESD. In this regard if we look at the perceptions of student teachers about the second statement, the results are quite similar to that of other two groups. A small number of student teachers were undecided to include learning for economic development among other key aspects of ESD. Generally speaking, the results show that teachers and student teachers express positive perceptions regarding all the learning that are key aspects of ESD.

Table 6.5a .Key aspects of Sustainable Development Education are: (Teachers)

Key aspects of ESD are:		Public school teachers					Private school teachers				
		Strongly agree	Agree	Undecided	Disagree	Mean	Strongly agree	Agree	Undecided	Disagree	Mean
1	Learning to take care of the environment	19 68%	9 32%	0	0	1.3	20 80%	5 20%	0	0	1.2
2	Learning for economic development	17 61%	11 39%	0	0	1.4	14 56%	11 44%	0	0	1.4
3	Learning to develop social Values	12 43%	16 57%	0	0	1.5	17 68%	8 32%	0	0	1.3
4	Learning to know about shared values	11 39%	13 46%	4 14	0	1.7	16 64%	6 24%	3 12%	0	1.5

Table 6.5 b **Key aspects of Sustainable Development Education are: (Student teachers)**

No	Key aspects of ESD are:	Student Teachers				
		Strongly Agree	Agree	undecided	Disagree	Strongly Disagree
1	Learning to take care of the environment	18 36%	30 60%	2 4%	0	0
2	Learning for economic development	12 24%	35 70%	3 6%	0	0
3	Learning to develop social values	24 48%	26 52%	0	0	0
4	Learning to know about shared values	12 24%	26 52%	11 22%	1 2%	0

### 6.6 . Analysis of different approaches to introduce ESD in the curriculum

In this section different approaches to introducing the concepts of ESD are discussed. The main idea is to explore the perceptions of teachers and student teachers towards these approaches. It is evident through the literature review (Filho, Monals and Pace, 2009; Jukler, 2004; STables & Scott, 2002) that ESD requires a holistic approach. This approach is not a case of adding more content, but reframing the curriculum for sustainability. The interrelationship between social, environmental and economic perspectives on local and global levels embedded in the subject matter is central to this strategy. Table 6.6 highlights the distribution of teachers and student teachers perceptions in this regard. Generally, the results clearly indicate that the teachers of both groups and the student teachers strongly believed that the humanities subjects, especially social studies, history, geography are the appropriate approaches to introduce ESD in the curriculum. The data shows that both private school teachers and student teachers agreed that scientific subjects such as mathematics and science are less appropriate approaches to introduce ESD in the curriculum.

Another important indication that these results present is that none of public school teachers agreed that ESD could be a separate subject in the curriculum, in the same way private school teachers and student teachers seem less in favour of introducing ESD as a distinct subject. Yet the views among the public school teachers and private school teacher of the relationship between ESD and extra-curricular activities are the same while, 50% of student teachers who participated in the study attached importance to practice extra-curricular activities for introducing ESD in classrooms. The majority of the teachers from both groups did not agree with the approach of introducing ESD in every part of the curriculum while 52% of student teachers remained undecided about it.

**Table 6.6: Suitable approaches to introduce Education for Sustainable Development in the curriculum**

Concepts of ESD should be taught through:		Public School Teacher				Private school Teacher				Student Teacher			
		Appropriate	Undecided	Inappropriate	Mean	Appropriate	undecided	inappropriate	Mean	Appropriate	Undecided	Inappropriate	Mean
1	A specific subject called Education Sustainable Development	0	10 35%	18 64%	2.6	8 34%	15 65%	0	2.6	18 36%	28 56%	1 2%	2.8
2	Social studies, History & Geography	24 86%	4 14%	0	1.1	20 87%	3 13%	0	1.1	19 38%	27 54%	3 6%	1.6
3	Science subjects	23 85%	3 11%	3 4%	1.2	9 42%	10 48%	2 9%	1.6	13 26%	36 72%	1 2%	1.7
4	Extracurricular activities	17 61%	8 28%	3 11%	1.5	14 61%	2 9%	7 30%	1.6	25 50%	24 48%	1 2%	1.5
5	Every part of curriculum	6 21%	7 25%	15 54%	2.3	2 8%	9 37%	12 52%	2.4	6 12%	25 51%	18 37%	2.2

### 6.7. Analysis of perceptions about the aims and goals of ESD:

The goals and aims of ESD have great importance attached to them. In this regard a series of statements was constructed in the light of the literature reviewed to ascertain the teachers and student teachers' perceptions. As described by the UNESCO the goal of ESD deals with the well-being of all four dimensions of sustainability – environment, society, culture and economy (UNESCO, 2005 p.43). Table 6.7 presents the responses of teachers and student teachers to each statement regarding aims and goals of ESD. The responses of the first statement are very positive especially, from the teachers. Teachers from both groups showed their 100% agreement with the statement that the ESD must be directed to provide the students with knowledge about economic activities and social activities. On the statement that ESD must provide students with skills of critical thinking and problem solving, 75% of public school teachers agreed and 25% of them were undecided. 84% of the private school teachers confirmed the need for skills for critical thinking and problem solving in the teaching of ESD. The results of the third statement 'ESD must be directed to provide the students with real opportunities to participate in community activities' showed divided opinion. In this case 55% of the public school teachers are agreed and 45% remained undecided. As far as private school teachers are concerned their responses show a different picture with 72% agreeing with the statement and 25 % are undecided. In the case of student



teachers the majority of them (84%) agreed with the statement and 10 % were undecided to confirm it or not.

As all the teachers are more aware of Environmental Education than ESD (evident from the results) therefore, their responses for the statement related to the “direction of teaching the ways to protect the environment nationally and globally”, are very positive. The results reveal that 82% of public school teachers and 84% of private school teachers and 62% of student teachers were agreed with the statement. A few participants (18% Public ST, 16% private ST and 8% of student teachers) remained undecided. Over all, the results of all three groups show slight differences related to the ‘teaching for the protection of environment.’

Table 6.7 a: **Teachers’ perceptions about the goals of ESD.**

ESD must be directed to provide students with:		Public School Teachers					Private School Teachers				
		S. agreed	Agreed	Undecided	Disagreed	M	S.agreed	Agreed	Undecided	Disagreed	M
1	Knowledge about economic activities and social activities	28 100%	0	0	0	1.6	25 100%	0	0	0	1.4
2	Skills of critical thinking and problem solving	22 75%	0	7 25%	0	2.0	21 84%	0	4 16%	0	2.0
3	Real opportunities to participate in community activities	15 55%	0	12 45%	0	2.0	18 72%	0	7 25%	0	1.9
4	Ways in which to protect environment nationally and globally	23 82%	0	5 18%	0	2.0	21 84%	0	4 16%	0	1.5
5	Appreciation of cultural heritage	13 65%	0	7 35%	0	2.2	20 80%	0	4 16%	0	1.8
6	Positive attitudes towards work, productivity, savings and consumptions	23 82%	0	2 8%	0	1.3	22 88%	0	3 12%	0	1.5

Table 6.7 b **Student teachers’ perceptions about the goals of ESD.**

	ESD must be directed to provide students with:	Student Teachers					
		Strongly agree	Agree	Undecided	Disagree	Strongly disagree	M
1	Knowledge about economic activities and social activities	9 18%	25 50%	11 22%	1 2%	4 8%	2.3
2	Skills of critical thinking and problem solving	11 22%	32 64%	5 10%	2 4%	0	1.9
3	Real opportunities to participate in community activities	26 52%	16 32%	5 10%	3 6%	0	1.7
4	Ways in which to protect environment nationally and Globally	19 38%	22 44%	4 8%	1 2%	4 8%	2.14
5	Appreciation of cultural heritage	15 30%	21 42%	6 12%	5 10%	2 4%	1.9
6	Positive attitudes towards work, productivity, savings and Consumption	1 2%	49 98%	0	0	0	2.0

## **6.8 The importance and adoption of appropriate teaching methods for the content related to ESD**

The review of literature indicates (see chapter 3b) that the discourse of environmental education and ESD emphasise holistic and interdisciplinary teaching and learning by engaging students in actions and critical inquiries in to issues. Therefore, the classroom must be active with problem-solving experiments, rather than dominated by direct instructions (Stevenson, 2006; Pressley, 1992; Tuckman, 1992; Wadsworth, 1978).

As discussed earlier ESD needs a development of critical consciousness through a process of interactive pedagogies. It means that the choice of pedagogy for ESD requires moving from the level of cognition to epistemic learning (Sterling, 2001). Therefore, the teachers should use alternative pedagogies that create relaxed collaborative, co-constructed learning and encourages critical thinking (Bourn, 2014). Regarding this a set of questions were asked from the teachers to know about their teaching practices in classrooms and which teaching methods they perceive significant for ESD. Table 6.8 shows the scores and means of perceptions of STs, Public school teachers and Private school teachers relating to appropriate teaching strategies to deliver ESD in the class rooms. The results of the responses of teachers from both groups declared all teaching strategies given in the questionnaire, important. A few teachers from public schools are undecided towards the importance of following strategies given in the questionnaire: *“Students work on projects that involve gathering information outside of the school”* and *“Encourage students to write letters to the officials to express their opposition or support to some government policies”*. However, the data shows that the teachers from private schools found all the strategies important to achieve the ESD goals in the classroom.

In contrast, if we look at the section about the practices of all the mentioned teaching skills in the class room, the picture is quite different. 100% of the teachers from both academic back grounds agreed that the most exercising technique for teaching by them is to study text books in the classrooms. Researchers such as (Brooks and Brooks (1999) and Millar (1989) support these results by indicating that despite recognising the effectiveness of interactive approaches, this process is very challenging and takes time, more time than traditional didactic methods. Moreover it is also argued that the resources used to assist learners on their journey are less likely to be textbooks and more likely to be primary data or supplemental materials (Brooks and Brooks, 1999). In the same way Sterling (2001) emphasizes that the

use of resources outside textbooks are well required to move from cognitive learning to epistemic learning.

Frier (1973) refers to the approach of teaching through text books only as a system of traditional 'banking education' in which the learner would be deprived of consciousness necessary for them to become the agents for change. Giordan (1998) stressed that indeed, traditional teaching based on transmission of knowledge is inappropriate as it does not help pupils to construct the conceptual meaning of words, ideas and values.

Interestingly all the participants agreed that their teaching practices support the development of critical thinking skills among students. Although, moderate responses can be observed among both groups of teachers about less used teaching strategies. These include *'encouraging students to write letters to the government officials to express their oppositions to some government policies'* (Public ST 14% Private ST 12%), *students work on projects that involve gathering information outside of the school* (Public ST 6% Private ST 48%), and *using the internet to gather information and engage with other students in the world* (Public ST 2%, Private ST 1%) and teaching through case study approach (Public ST 2%, Private ST 28%).

Interestingly, no one from both groups reported discussing controversial issues in the classroom. Observations from the Table (6.8) reveal that the ratio of private schools teachers employing teaching strategies in the classrooms (mentioned in the Table 6.8) is more than the public school teachers. The literature emphasises that the approach of teaching about controversial issues raises important questions for teachers concerning bias, balance and personal beliefs (e.g. Stradling et al., 1984; Halstead & Taylor, 1996; Rickinson, 2000).

Moreover, the literature on ESD pedagogy advocates active learning, critical evaluation of values and cultural sensitivity (e.g. Edman, 2004). Jickling (1992, p. 137) argues that 'we must enable students to debate, evaluate, and judge for themselves the relative merits of contesting positions. In a similar way, Björneloo (2004, p. 54) suggests that 'central concepts in education for sustainable development are independence, critical thinking, participation and evaluation of results. Several authors emphasise the importance of relating global issues to local realities and action at a local level (e.g. Edman, 2004).

The Table 6.8 shows the gaps and similarities among the perceptions and practices of teachers and student teachers for adopting strategies for ESD.

Table 6.8. **The Importance and adoption of appropriate teaching methods for content related to ESD**

Teaching methods adopted by the teachers			Teaching Strategies	How important is each of the following methods for achieving the goals of ESD							
No	Private School Teachers	Public School Teachers		Public School Teacher				Private School Teacher			
				Important	Undecided	Unimportant	M	Important	Undecided	Unimportant	M
1	12 48%	3 6%	Encourage students to work on projects for gathering information from community	25 89%	3 11%	0	1.3	23 92%	0	0	1.2
2	25 100%	28 100%	Rely on text books	26 93%	0	0	1.0	25 100%	0	0	1.0
3	22 88%	6 21%	Group work activities on different topics and prepare presentations	28 100%	0	0	1.0	25 100%	0	0	1.0
4	13 52%	7 25%	Resource acquisition to equip yourself	28 100%	0	0	1.0	25 100%	0	0	1.0
5	3 12%	4 14%	Encourage students to write letters to the officials to express their opposition or support to some government policies	24 88%	3 11%	0	1.7	25 100%	0	0	1.2
6	12 48%	6 21%	Participation of students in events or activities in the community	25 89%	0	0	1.0	21 84%	0	0	1.2
7	25 100%	28 100%	Activities for developing critical thinking skills among students	26 93%	2 3%	0	1.3	25 100%	0	0	1.0
8	10 40%	5 18%	Lecture method is adopted in the classroom for most of the time	21 87%	3 6%	0	1.3	25 100%	0	0	1.1
9	0 0%	0 0%	Controversial issues are discussed in class room	22 78%	6 21%	0	1.8	20 80%	5 20%	0	1.8
10	7 28%	2 7%	Teaching through case study approach	17 80%	5 20%	0	1.7	25 100%	0	0	1.2
11	20 80%	7 14%	Invite people from community to talk to students	22 78%	6 21%	0	1.0	23 92%	7 28%	0	1.0
12	2 8%	1 4%	Use the internet to gather information and link with other students in the world	21 75%	7 25%	0	1.8	25 100%	0	0	1.2
13	25 100%	28 100%	Emphasis on more practice for examinations by reading the text books	27 96%	1 4%	0	1.5	17 68%	8 32%	0	1.6

In the light of suggested and indicated pedagogies for ESD in the literature, it seems that these results do not match with the required teaching and learning strategies recommended for ESD. There is a gap between their practices in the classroom and the priorities they had expressed. Jackson (2007) in a survey conducted in South Africa identified a serious mismatch between teachers' verbal acknowledgement of the importance of sustainability and

what they actually do. Similar gaps concerning the concept of ESD have been identified in Australia (Gough 2006) and Cyprus (Zachariou and Kadji 2009), through research that explored principals' and teachers' perceptions, understanding and practices of ESD.

#### **6.9. The effectiveness of teachers training programme for student teachers to adopt appropriate teaching methods and their importance for the content related to ESD**

Hopkins and McKeown (2002) emphasize teacher preparation, pre-service and in-service as critical to the implementation of Education for Sustainable Development. Teacher education thus recognised as a key strategy in achieving the objectives of ESD. It is expected that teacher education is fulfilling the goals of the United Nations' Decade of Education for Sustainable Development (DESD). The overall goal of pre-service teacher education is to promote "critically reflective approach to all aspects of the curriculum, especially themes such as citizenship, which lie within the social domain that leads towards education for sustainability" (Wilkins, 2004, p.242).

It is evident that literature support s the significance of teacher education for achieving the goals of ESD. Reflecting on all these theories this section of the questionnaire dealt with the effectiveness of the ITE programme for adopting the strategies to achieve the goals and objectives of ESD. In this regard the right hand section of Table 6.9 shows the degree of importance for each given teaching strategy by student teachers while on the left side STs expressed the effectiveness of their ITE programme to practice these teaching strategies.

More than 80% of the STs supported the significance of employing different teaching strategies to promote the concepts of ESD in the classroom. They agreed that classroom activities should enhance the skills of students such as work on different projects (90%), work in groups (94%), study text books (88%), encourage them to write a letter to officials to express their support or oppositions for government policies (52%), activities in which students are encouraged to think critically and (64%) support for the activity in which teacher delivers the lecture and the students take notes. However, Student Teachers seem less supportive for a small number of teaching strategies for instance; they believed (46%) that it is not important for the students to participate in events or activities in the community.

High rated responses from the student teachers reveal that their programme of study is effective to promote majority of the given teaching methods except the activity to encourage students to write letters to the officials to express their opposition or support to some

government policies. The majority (82%) of them believed that they are learning to work on projects and gathering information outside their institution, 88% believed that their course of study also emphasises studying through text books. 92% student teachers agreed that they work in different groups and prepare presentations and they are learning to acquire the resources to equip themselves to be a good teacher. An overwhelming majority of them (80%) also agreed that they are encouraged to participate in events or activities in the community and 92% of them considered it very important.

To develop critical thinking skill is considered to be very significant for practising ESD. On this issue interestingly, 92% of STs declared that their ITE programme supported the development of critical thinking while, 52% of them considered it as an effective skill. Over all the results of this section show that majority of the student teachers were thinking of all the given strategies as important and they also confirmed that their course of study is supporting the majority of activities, except few. However, they are not learning all these teaching strategies in the context of ESD but generally they are learning all these to make their teaching interesting and effective.

**Table 6.9 Effectiveness of teachers training programme for student teachers to adopt appropriate teaching methods and their importance for the content related to ESD**

Student Teachers									
Effectiveness of teacher training programme to use each Method.					How important is each of the following methods for achieving the goals of ESD	Importance of teaching methods			
No	Mean	Ineffective	Undecided	Effective		Very important	Undecided	Unimportant	Mean
1	2.3	3 6%	6 12%	41 82%	Students work on projects that involve gathering information outside of the school	45 90%	4 8%	1 2%	1.4
2	1.0	2 4%	4 8%	44 88%	Students study text books	44 88%	2 4%	4 8%	1.0
3	1.5	1 2%	3 6%	46 92%	Students work in different groups on different topics and prepare presentations	47 94%	3 6%	0	1.5
4	1.2	4 8%	11 22%	35 70%	Resource acquisition to equip yourself	40 80%	9 18%	1 2%	1.2
5	1.7	8 16%	9 18%	33 66%	Encourage students to write letters to the Officials to express their opposition or Support to some government policies.	46 92%	3 6%	1 2%	1.5
6	2.1	7 14%	3 6%	40 80%	Students participate in events or activities in the community	23 46%	24 48%	1 2%	2.5

#### **6.10 The analysis of strategies for the development of ESD, adopted by institution and prioritising them by teachers.**

There are many strategies that an institution can adopt to enhance the awareness for ESD among the teachers and the students. Here through data it would be explored that what kind of strategies are adopted by the school to deliver the concepts related to ESD and how much these are practised by the teachers.

This section of the questionnaire had two parts one asking them to choose the level of their priority to (1,2,3,4) certain steps to promote ESD and the other part seeking either, 'yes' or 'no' responses to the steps supported by their institution. These listed items are related to the strategies that an institution could adopt to teach the concepts related to ESD more effectively including: teacher training, guidance, observing different days and raising awareness of the students. Side A of Table 6.10 represents the summary of responses on whether or not participants are getting any kind of support from their institution and Side B of the Table illustrates the level of priority given by the teachers.

All the respondent teachers from public school believed that they are not receiving any guidance and advice on teaching material and methodology to enhance the awareness of ESD. Merely 4% of the teachers from private schools responded in contrast otherwise, majority of them also having with the similar views like public school teachers. These results present a gap that the new evolutions in the field of Education for Sustainable Development are not satisfactorily covered by short in-service training programs. These findings are compatible with the findings of other researchers (Symons 2008, Barberi 2005; Jucker 2002; Karameris et al. 2006; Vassala and Georgiadou 2006).

On the contrary, the majority of the teachers from both groups agreed that their institutions are organising training workshops and courses to prepare them for the activities related to ESD. If we look at the results of the first part of this section, all the teachers responded negatively regarding receiving any guidance and advice from their institution for the development of ESD. In this situation as an observer and an analyst I would like to explain that majority of teachers believe that they have attended the training workshops and courses organised by their institution to enhance their teaching methods by introducing different activities which are mentioned in the different sections of the questionnaire. However, without mentioning the term ESD these were not helpful for the development of a link between concepts and teaching practices for ESD. For this reason the results show a different

kind of picture here. 82% respondents from public schools and 68% of the respondents from private schools gave the highest priority to the strategy of providing the guidance material by institution but not in the context of ESD.

The results show 100% of the respondents from public schools and 71% of the respondents from private schools prioritised highly the strategy of providing training to the teachers during their service on the first level of their priority to practice new concepts in the curriculum. However, all the teachers from both groups are agreed on the observance of different days related to ESD. For instance, they observe Earth Day, Labour Day, and celebrations of different cultural and religious activities. Moreover, they all believed that such a strategy must be continued. Despite observing all the important days, the majority of the teachers from both groups rejected the idea that their institutions are raising the awareness of students towards ESD. In this regard 28% of private ST agreed that their institutions are arranging the activities to enhance the awareness of the students towards ESD while all respondents from public ST confirmed that their institutions are not supporting the students to enhance the awareness for ESD. As far as their choice of priority is concerned, 71% of public ST and 64% private ST chose the strategy of raising the awareness of students on the level one of their choice of priority.

In short, an overwhelming majority of participants view the strategies outlined to achieve the goals for ESD as much needed steps and consider it to be forward looking, but they are not satisfied with the support provided by the institutions.

**Table 6.10 Analysis of the strategies for the development of ESD, adopted by institution and prioritising them by teachers.**

A. Strategies Adopted by your institution			Strategies for the development of ESD	B. Priorities given by teachers									
				Public school teachers					Private school teachers				
	Private School Teacher	Public School Teacher		1	2	3	4	M	1	2	3	4	M
1	1 4%	0	Guidance and advice on teaching materials and methodology to enhance	23 82%	1 4%	3 11%	1 4%	1.5	17 68%	0	4 16%	4 16%	1.8
2	12 42%	21 76%	Workshops/courses to prepare teachers for the activities related to the ESD	28 100%	0	0	0	1	19 76%	0	0	6 24%	1.8
3	25 100%	28 100%	To observe different days related to the ESD( for example Earth Day, Heritage day, labour day)	28 100%	0	0	0	1	20 80%	0	0	5 20%	1.8
4	7 28%	0	Raising awareness of students towards ESD	20 71%	3 8%	5 18%	0	1.7	16 64%	0	6 24%	7 28%	2.0



### 6.11 Facilities provided by school to teach the concepts for ESD in classroom.

The purpose of this section was to explore the kind of facilities or support provided by the institution to the teachers. Ostrom et al, (1993) stresses that institutional arrangements and incentives can generate or hinder the efforts for ESD.

One of the major supports, an institution can provide to teachers is, in-service teacher training courses and refresher courses. In this regard 42% private school teachers and 76% public school teachers claimed that they had attended the teacher training courses conducted by the administration. The majority of the teachers (100% public ST and 96% private ST) agreed that their schools have arranged refresher courses for them. These results contradicted the responses received for statement no.1. On further exploring this issue teachers described that although, they are receiving guidance for practicing student centred activities for the content related to ESD through in-service teacher education programmes but without mentioning the term ESD.

On the matter of availability of the copy of the national curriculum 64% public school teachers responded positively while all the participants from private schools denied to have the copy of national curriculum. 96% public school teachers and 84% private school teachers agreed on the availability of audio visual aids in the schools. Internet and library access are very important resources that a school can provide to the teachers. 14% private school teachers and 10% public school teachers claimed that they are equipped with internet and library resources provided by the schools.

Table 6.11 Facilities provided by school to teach the concepts for ESD in classroom.

No	Facilities provided by school to teach the concepts for ESD in classroom	Public School Teachers	Private School Teachers
1	Teacher training courses	13 (46%)	19 (76%)
2	Refresher courses	28 100%	24(96%)
3	Availability of the copy of the national curriculum	18 (64%)	0
4	Audio visual aids	27 (96%)	21(84%)
5	Internet and library resources	10 (35%)	14(56%)

### 6.12 Difficulties in implementation of different strategies for teaching ESD

The focus of this section is to identify the difficulties which are faced by the teachers in implementing the different teaching strategies. In almost all the sections of this

questionnaire, teachers directly or indirectly mentioned the barriers in adoption of the strategies for ESD.

The major barrier or difficulty explored through the study was lack of awareness for ESD. The curriculum consists of content regarding ESD but without enhancing its significance and an emphasis of adoption of interactive teaching and learning activities. Refresher courses are available for teachers but these are not supporting the promotion of ESD strategies and goals. Stevenson (2006) supports the same argument by stating that not surprisingly, the ‘transforming learning’ approach for ESD has become a significant concern for practice as additional intellectual and pedagogical demands are placed on teachers and schools. This can leave teachers feeling overwhelmed, especially given the absence of illustrative examples or case histories of sustainable societies in curriculum which could provide support material.

In this section the other areas of difficulties were listed and teachers were asked to choose them according the level of difficulty (1= very difficult, 2=difficult, 3=moderately difficult, 4=not difficult, 5=not at all difficult). Mainly we can identify following constraints related to:

1. Lack of time
2. Class size
3. Lack teaching material
4. Lack of funds.

#### **6.12.1 Difficulty related to time management**

On the issue whether there was enough time for the preparation of teaching ESD in the class rooms, in case of public school teachers 52% believed it very difficult and 9% difficult. If we add both of these responses it will show that 61% of respondents found it difficult for them prepare for the teaching of ESD due to lack of time with the mean of responses 2.3. In the same way responses of 75% of private school teachers are similar to the public school teachers. However, 40% of public school teachers and 1% private school teachers denied the factor of short time for getting prepared to teach the ESD while 21% respondents from private schools found it moderately difficult. Similar results can be seen on the issue of ‘there is less time to cover the syllabus (statement No.6). The main task of teachers in Pakistan is to cover the syllabus to prepare the students for annual exams. Most of all the subjects at primary level are taught by the same teacher. For this reason he/she is responsible for covering the whole syllabus within given time.

The majority of the participants agreed on the issue of shortage of time to cover the lengthy syllabus. The results of participants revealed that the majority of public school teachers perceived it difficult (56% very difficult, 13% difficult and 4% moderately difficult). If we add all these results it will appear that 73% of teachers believed that it is hard to cover the syllabus in one academic year. On the other side 91% private school teachers found it very difficult and 9% perceived it moderately difficult to cover the syllabus in given period of time. On the whole it is clear that 100% of private school teachers faced difficulty in implementation of new teaching strategies to promote ESD in the classrooms due to scarcity of time available to cover the curriculum. In literature many researchers such as Hart (2003) also believe that teachers may find to follow the strategies for ESD very challenging because schooling is a very highly structured process, there are high demands for standardization and particular assessments strategies, and traditional views of teaching and learning are still well established. Stevenson (2007a) mentions the same barrier by indicating that there is an increased emphasis on accountability, standardized testing, and centrally defined curriculum which allows for increased standardization.

In the findings of another survey Tyack & Tobin, (1994) present the same picture by analysing that for the vast majority of teachers, the organisational structures and rules of schooling are too powerful to change or work against. Instead of enduring considerable stress in trying to change them, they have learned to work within these traditional and persistent organisational patterns.

#### **6.12.2 Difficulty related to the students:**

The second issue is related to the readiness of students to learn the concepts related to the ESD. On this issue the majority of the responses looked in the favour of students readiness to learn the concepts related to ESD (47% public ST, 56% private ST). Only 10% of public school teachers and 20% of private school teachers believed that it is difficult to make the students ready to learn through different activities. In the middle category 36% teachers from public schools and 24% teachers from private schools found it moderately difficult for the students. However, if we look over all to the responses the Mean score for public school teachers 3.1 and for private school teachers 3.4 reflects that teachers believed that it is moderately difficult to make the students for ready to learn ESD through different activities.

The next statement is related to the previous one. It is about the adoption of change from old practice of learning for the students, this is rote learning. The mean scores of the teachers for both groups (Public ST, 3.7 Private ST 3.2) show the scenario close to the results of previous statement. Although the mean scores of both groups are very close to each other however, the analysis of the perceptions of teachers in terms of percentages presented a different picture. In total 10% of public school teachers and 58% of private school teachers expressed some degree of difficulty on this issue. The rest of public school teachers felt it was not difficult and 4% believed that is not at all difficult whilst, 42% of private school teachers did not find it difficult for the students to learn through different strategies.

Statement No.5 is the continuum of previously described two issues related to the students. The purpose of this statement was to probe why a certain number of teachers perceived it difficult for the student to learn the concepts of ESD through different activities. Therefore, it was asked that if they were thinking it as above the level of the students? The majority of the teachers from both groups (Public ST 43%, Private ST 52%) declared it moderately difficult, which means they believed that the level of the students to learn ESD is not a big difficulty. Their mean scores, public school teachers 4.8 and private school teachers 3.7 show that teaching of ESD is not above the level of understanding of the students.

#### **6.12.3 Difficulty of large class size:**

The fourth item of this section addressed the issue of 'big class size.' This is evident from the results that 42% of public school teachers and 25% of private school teachers perceived the large class size is big difficulty to adopt the different teaching strategies. Overall, findings of all the level of difficulties revealed that 61% of public school teachers and 96% of private school teachers considered the matter of large class size as a hurdle while, the remaining 39% of public school teachers and 1% private school teachers did not consider it as a big problem to handle. Intensity of difficulty in this issue is higher.

#### **6.12.4 Lack of teaching resources and funds:**

Provision of teaching resources is an essential factor for effective learning and teaching. This section will explore what extent teachers are supported by the provision of resources and the degree of difficulty to acquire these resources for the teachers. The results indicated, if we add all levels of difficulty (56% very difficult, 1% difficult and 28% moderately difficult) 100% of teachers from public schools agreed that the lack of teaching material in the schools makes it difficult to introduce new approaches in teaching. 12% private school teachers

expressed the view that the lack of teaching material is not a difficulty and 17% declared it not at all difficult. Overall, the analysis shows that 29% private school teachers believed that lack of teaching material is not a difficulty and 70% believing it difficult for them to introduce new teaching approaches.

The subsequent issue looked at the funding problem for the teachers and its effects on the implementation of the teaching strategies for the concepts of ESD. 4% teachers from both groups reported it causing moderate difficulty, 37% public school teachers and 68% private school teachers rated it difficult, 61% public school teachers and 28% private school teachers perceiving lack of funding caused a great difficulty. Giordan (1998) mentions the same concerns by stating that, the integration of EE/ESD in education systems remains generally slow, unequally shared and particularly less effective mainly due to traditional teaching paradigms, inflexible curricula, lack of resources, heavy load of school knowledge and insufficient time for an in-depth approach to the study of environmental matters.

Table 6.12: Difficulties in adopting different teaching strategies for teachers

It is hard to adopt the different strategies for teaching because:	Public school Teachers						Private School Teachers					
	1	2	3	4	5	M	1	2	3	4	5	M
1 There is not enough time to prepare yourself to teach the ESD	12 52%	2 9%	0	9 40%	0	2.3	11 46%	7 29%	5 21%	1 4%	0	1.3
2 Students are not ready to learn the concepts of SD by different activities	5 10%	0	10 36%	12 43%	1 4%	3.1	0	5 20%	6 24%	12 48%	2 8%	3.4
3 It is hard to change the students From old practice of learning.	0	2 4%	3 6%	16 73%	1 4%	3.7	2 8%	0	12 50%	4 42%	0	1.2
4 The class size is big	12 52%		2 9%	9 39%	0	2.3	6 25%	5 21%	12 50%	1 4%	0	1.3
5 To introduce such concepts during teaching are above the level of the students	0	3 13%	10 43%	3 13%	6 26%	4.8	0	0	13 52%	7 28%	5 20%	1.0
6 There is less time to cover the syllabus	13 56%	3 13%	1 4%	5 22%	1 4%	2.0	21 91%	0	2 9%	0	0	1.1
7 Lack of teaching materials	14 56%	4 16%	7 28%	0	0	1.7	8 33%	3 12%	6 25%	3 12%	4 17%	1.25
8 Lack of funding to provide the required resources	16 61%	9 37%	0	1 4%	0	1.5	7 28%	17 68%	1 4%	0	0	1.7
9 There is exam pressure on the students	22 87%	0	1 4%	3 11%	0	1.4	17 68%	0	6 24%	2 8%	0	1.7

### 6.13 Suggestions for implementations of ESD

This last section of the questionnaire moves from the viewpoint of the teachers about their practices and happening in the schools to ‘what should happen’? This section of the

questionnaire provided the teachers a chance to reflect on their role in the implementation of ESD by putting forward some suggestions. The participants were asked to choose the suggested items by according to the degree of the importance. For this purpose a four point scale was used (1=very important, 2=important, 3=not very important,4=not at all important. Three main themes emerged from these suggestions:

- Provision of facilities for teachers and for their teaching process.
- Role of teachers in the development of curriculum.
- Provision of proper support and facilities to the teachers can help the teachers to introduce new concepts and apply innovative teaching methods in the classrooms.

The first item in this section is about in-service teachers training and refresher courses for teachers. Yavetz, Goldman, and Pe'er (2009) highlight the need for in-service teacher education by stating that in order to implement ESD effectively in schools; teachers must undertake formal training in their teacher education program. The majority of the teachers from both public and private sectors rated it highly important by suggesting that there must be in-service teachers training for the implementation of new concepts in changing curriculum. The importance of this suggestion is also reflected through the mean score of 1.0 public school teachers and 1.5 private school teachers.

For the suggestion to involve the teachers in process of designing curriculum, 96% public school teachers gave their response in very important category while, if we look at the responses of private school teachers for this suggestion, they did not consider it very important. 44% of private school teachers consider the involvement of teachers important in the process of curriculum formulation. The mean score of public school teachers 1.0 and private school teachers 3.4 indicates a significant difference in the opinion of the teachers from both groups.

The next statement refers to the suggestion for less examination stress. 74% of public school teachers 88% of private school teachers suggested that there must be less examination stress on them. Statement No.4 is about the provision of resources for teachers particularly teaching materials, manual and guidance notes. The large majority of respondents (public STs 98%, private STs 88%) considered a major factor to enhance their teaching strategies. The subsequent suggestion is about the provision of funds and facilities for teaching especially, AV aids, internet and libraries. According to the responses of the respondents 81% of the public school teachers and 100% of private school teachers viewed the provision

of such facilities very important. Similar mean scores of 1.0 of both private ST and public ST indicates it as a strong recommendation.

The next statement also emerged as a strong recommendation which is ‘improvement in the working conditions of the teachers’ 81% of public ST and 96% private ST believed that there must be improvement in working conditions of the teachers while 19% respondents from public schools and 4% respondents from private schools were satisfied with the present working conditions for the teachers. The last statement is also related to the curriculum which refers to suggest change in curriculum. A majority of teachers from both groups agreed that there must be some changes in the curriculum.

Table: 6.13 **Suggestion of teachers for improvement**

No	Suggestion for improvement	Public school teachers						Private school teachers					
		1	2	3	4	5	M	1	2	3	4	5	M
1	Training for teachers to teach ESD concepts effectively.	28 100%	0	0	0	0	1.0	20 80%	0	2 8%	0	2	1.5
2	Involvement of teachers in designing the curriculum.	26 96%	0	1 4%	0	0	1.0	11 44%	2 8%	8 32%	3 12%	0	3.4
3	There must be less examination stress.	20 74%	0	1 4%	6 22%	0	1.7	22 88%	1 4%	2 8%	0	0	1.2
4	Provision of required teaching material.	28 100%	0	0	0	0	1.0	22 88%	1 4%	0	2 8%	0	1.3
5	Provision of facilities (AV aids, Internet, libraries, funds).	27 98%	0	0	0	0	1.0	25 100%	0	0	0	0	1.0
6	Improvement in working conditions of the teachers.	22 81%	0	0	5 19%	0	1.5	24 96%	0	1 4	0	0	1.1
7	There must be some changes in the curriculum.	27 96%	0	0	0	0	1.0	22 92%	0	0	2 8%	0	1.25

## 6.14 Conclusion and summary

This chapter has presented the quantitative data obtained through the questionnaire from student teachers and teachers of their perceptions regarding different aspects of ESD. There were five main sections in the questionnaire:

- Understanding of different aspects of ESD by teachers and student teachers
- Teaching strategies adopted by teachers
- Support from institution
- Difficulties to adopt certain teaching methods
- Suggestions for improvement

The role of teachers in the process of implementation of the key practices for ESD is a main theme throughout the questionnaire. This theme built up on the perceptions and conceptions of ESD by teachers and student teachers. A majority of the respondents shared positive

responses towards environmental education. The term Sustainable Development Education was new for many teachers but with the help of translated version of questionnaire they were capable to understand it.

The majority of respondents believed that the aims and goals of the ESD should be a set of learning about environmental issues, conservation and development of economic and social values. A small number of participants were undecided towards the approaches to introduce the concepts related to the ESD. However, a majority of them believed that the concepts related to the ESD should be embedded in the existing curricula.

They believed that adoption of different strategies and methodologies are important to develop the understanding of the students but the support from institution is required. They are not satisfied with the support provided by their institution. This missing support covered a long range of facilities included, internet, AV aids, library and funds. They also supported the suggestions towards the policy makers and they were dissatisfied by the non-involvement of teachers in the process of curriculum development and change. They suggested to be well supported, resourced and having awareness towards all the new policies related to the change in the education policy or contents. They also suggested improvements in their working conditions.

In short, it can be concluded that all the participants showed a positive response towards introducing and implementation of ESD in the schools and classrooms. They agreed on the beneficial effects of all the teaching strategies on student learning and they also agreed that students are ready to learn through interactive methodologies and strategies but the implementation of these new approaches of learning at the classroom level posed challenges to the teachers. At this point, the suggestion from the data is that teachers, as the main implementers of this phenomenon, need support and facilitation to cope with this challenging task.



## **CHAPTER SEVEN**

### **Interview Analysis**

#### **7.1 Introduction**

This chapter presents the interviews data analysis obtained from head teachers. These interviews were designed to explore the views and experiences of head teachers relating to awareness and implementation approaches to achieve the goals of ESD at the institutional level. The analysis is presented in the form of summaries of emerging themes along with illustrative quotes identified from the data. This process of presentation is structured in a sequence and this process of data analysis enabled me to make sense of the data that were collected.

The role of head teachers has consistently been identified by educational research as critical to the successful implementation of educational reforms and changes. According to several researchers head teachers are key agents for change, because they are in a position to shape the organisational conditions and build the capacity necessary for successful and sustained implementation of new programmes or practices (Davies 2006; Jackson 2007).

Keeping in mind the significance of the role of a head teacher in any institution semi structured interviews were conducted with ten head teachers of primary schools from both private and public institutions. The semi semi-structured interviews allowed for more in depth dialogues. Gall et al. (2007) describe semi-structured interviews as asking a number of structured questions and then probing with open-ended questions to obtain additional information.

For this purpose, a set of key questions, given the body of literature reviewed were designed (Appendix.5) but allowed for a considerable amount of flexibility about how and when these issues were raised during the course of the interview. This allowed me to respond to the dynamics of individual conversations with participants. Moreover, through this type of interview respondents could express their views on Sustainable Development Education in their own terms. Early data collection through the questionnaire survey from the teachers, directed me to make some amendments in interview questions in more productive manner. Interviews were audio-recorded and this practice ensured that everything said could be analysed at a later time (Merriam, 1988).

Participants were interviewed and audio taped with the exception of one participant who did not want to be recorded. In this case written notes were taken. All the interviews were carried out at a location convenient to participants. Two of the interviews were conducted in English and the remaining eight were conducted in Urdu. During the interview the questions were adapted and improved upon, as new insights and information were added throughout the process. This meant that if one of the head teacher participants discussed something that seemed significant; I asked the other head teacher participants their views about that topic. An example of this is the issue of the gap between policy and implementation which was raised in an interview with a head teacher. Subsequently I was able to explore this with other interviewees.

These responses were transcribed and translated into English. In keeping with the interpretive design of the research and the qualitative nature of the data, the process of data analysis was inferred through the views of the participants regarding the understanding of ESD and current situation of ESD in primary schools of Pakistan. As mentioned before (in chapter four) the analysis have been done on 'conventional data analysis' as described by Hsieh and Shannon (2005p 1279). To follow this pattern, after transcription of the conversations the analysis started with repeated readings of the transcripts to get an overall sense of the data, to be categorized subsequently in different themes. This process was carried out as proposed by Charmaz (2006) in two phases 'open coding' and 'selective or focused coding.'

In first phase the responses were read carefully and the text was reported according to different emerging ideas without considering the main themes which is called as 'open coding'. In the next step all the information was scrutinised and coded according to the relevance of the research. I looked for the emerging themes and patterns of information after reading and rereading of the data. As a result the codes with similar meaning were combined. The selected codes became the themes to organize the data. Byrman (2008, p 543) describes it as 'reassembling the data by searching for connections between the categories that have emerged out of the coding. Mabry (2007) refers to emergent design as a necessity in further steps for research. Then data was organized from across the whole set of responses under these broader categories.

As noted previously, the interview pattern was set out in a semi structured way and major themes that were included in the questionnaire were identified. A key purpose of these interviews, as stated by Lundegard and Wickman (2007) and Barrett, (2007) was to explore

with the head teachers whether teachers in their schools were using an ‘action competence’ approach, and to what extent they are providing support for this. Post-interview notes were also taken, once each interview was completed. Merriam (1988, p 82) explains that this enables the researcher to “monitor the process of data collection as well as begin to analyse the information itself.”

This process of presentation is structured in a sequence and this process of data analysis enabled me to make sense of the data that were collected. Hatch (2002) notes that analysing means organizing and interrogating data in ways that allow researchers to see patterns, identify themes and discover relationships. I analysed the data as each interview was completed and transcribed. First of all the statement of the theme is given, secondly the emergent categories in every theme and the summary of issues within each category are articulated. Further the relevant research literature is also drawn to analysis.

There were several themes that were anticipated may come to light through interviews. Themes are defined as “salient, characteristic features of a case” (Gall et al., 2007, p. 452). The emerging themes here include:

- Understanding of ESD
- Role of head teachers in implementing the strategies regarding the development of ESD
- Challenges faced in the implementation process
- Impacts for students
- Suggestions to enhance the knowledge and practices of ESD among teachers and students.

To achieve the objectives of this study, interviews and observations were carried out to investigate the current situation of ESD in schools. Observations included the infrastructure and facilities of participating schools. Documents such as text books, lesson plans, teachers’ diaries and teachers’ guides provided by the Directorate for Staff Development (DSD) were analysed briefly. Along with this, informal talks with students were carried out to clarify some ideas to validate the findings. Data was collected in the form of field notes and audio recordings. According to Gall (1996) qualitative researchers study things in their natural settings without any intervention, and interpret and make sense of phenomenon in terms of the meanings people bring to them.

Selected head teachers belonging to different institutions were divided into two main categories of public schools and private schools. Three of the selected public institutions

were located in a large city with much better resources than the schools located in small towns or in urban areas. Likewise among five selected private institutions two of them fall in the category of elite private schools with better facilities and charging high fees. As per ethical approval all the respondents were allocated numbers R1a.....R5a for head teachers of public institutions, R6b.....R10b for head teachers of private institutions to differentiate from others and their anonymity was retained. The next step was to list the codes and to scrutinize the meanings of these codes and their relevance for the research. Some of the codes, similar in meaning, were combined. This was an inductive process as themes and codes had emerged from the data obtained. The views of each respondent were further reviewed and a comprehensive and representative summary of all the emerging issues were developed for each category.

## **7.2 Understanding of sustainable development education**

At the start of the interview initial questions were asked to probe the knowledge of the respondents about ESD. For this purpose several questions were posed which were related to environmental education to make a proper link with their previous knowledge. In relation to this the majority of the respondents shared common ideas. This is partly because their experiences were rooted in the same system and context.

The respondents in this study expressed their views about ESD as:

‘I know about the need for the environmental education but no idea about the sustainable development.’ (R2a)

‘Concepts of environmental education are present in the curriculum but sustainable development is a new phenomenon.’ (R3a)

‘Activities related to the environmental education are being practiced in our schools.’ (R9b)

One of the respondent head teachers was aware of the term sustainable development to some extent according to her:

‘I came across the idea of sustainable development by attending a conference during the course of Masters’ programme.’ (R7b)

A strong indication emerged in the responses of most of the respondents that they all believed the importance of environmental education. However, the concept of sustainable development education appeared to be new for them. Similar gaps concerning the understanding of ESD have been identified in Australia and Cyprus. The researchers explored the high level of awareness for environmental education among head teachers and teachers as compared to the understandings of ESD (Gough 2006, Zachariou and Kadji 2009).

Due to the lack in awareness of ESD, the meanings and the main idea behind ESD was elaborated to head teachers by the researcher. After becoming familiar with the main components of ESD, the majority of the respondents found agreed on the significance of ESD. Consequently, head teachers were in favour of emphasising the components of ESD in different disciplines. In the present study all head teachers provided a wide range of ideas encompassing the reasons for their lack of awareness about ESD, these included:

- Absence of the term ESD in curriculum
- Poor implementation process
- Lack of interest from policy makers.

It was revealed through the interview data that the main cause of unfamiliarity among the head teachers for the term ESD is that it is not specifically mentioned in the curriculum and in instructions received from Ministry of Education. They believed that usually the curriculum designer, while formulating the content for curriculum keep in mind the economic and market demands of the era. Stevenson (2007) also believes that most of the governments and private sector tend to create situation for students to be prepared to enter a global knowledge-based society as workers. Maths, Science, and literacy have taken the focal point, paying less attention to arts and citizenship.

Gaps in implementation of the educational policies were also thought to be a major issue to diminish the possible impact on awareness and implementation of ESD. This resonates with the views expressed by Khan (2010) when he states that in Pakistan huge gaps exist between the proposed goals for implementing ESD and what is actually happening in the classrooms. This is also supported by Michael Barber (2013) when he observed, “the grand challenge of educational reform in Pakistan is implementation. The problem in Pakistan’s educational system is not what needs to be done, but who will do it and how they will achieve their aims.”

One of the head teacher respondents for this study shared a similar view:

‘Of course the entire problem of having no knowledge about the ESD is due to the lack of interest of policy makers otherwise it is good idea to adopt.’ (R 2a).

From the responses obtained there was a perceived lack of understanding about the goals, aspects and procedures to be undertaken to make the ESD a practical phenomenon. This lack of understanding tempered the capacity to initiate the programmes and activities to enhance the objectives of ESD. On referring to the national education policy 2009-2010 in which the significance of ESD is included, one of the respondent head teachers declared it quite

insignificant because it does not actually transfer to areas where it was actually needed. According to him although the idea of ESD is very significant and urgent, the whole system should be ready to initiate such programmes. The students must have basic facilities for better learning at least according to him:

‘From our stand point these kinds of ideas are best practised in Western countries. First of all the students should be provided with basic facilities of proper building of a school and having regular supply of electricity, clean drinking water and comfortable environment for learning.’ (R4a).

Another respondent head teacher added that:

‘Pakistan has had a long history of reports and plans, but appears to lack both the capacity and the serious intent to implementation.’ (R3a)

This view articulates with evidence in chapter three and in chapter five of the study where analysis of policy documents in areas of the curriculum lacked practical approaches and consistency in the implementation process. The issues of an implementation gap and lack of interest in policy makers were identified as substantial factors hindering the successful implementation of ESD. It also appeared as emerging themes from my interview analysis as one interviewee noted:

‘Policy formulation is easy but the stage of implementation becomes challenging if it is not communicated properly.’ (R1a).

These gaps were perceived by respondents to be found in planning and policy with reference to consistency, communication and implementation strategies in the curriculum with reference to the materials, time, requirements, level, teaching methods, examination system and presentation of curriculum and in the provision of physical facilities and coordination.

### **7.3 Constraints for teachers to adopt the strategies according to the characteristics of ESD**

Teachers play a critical role in the adoption and implementation of any new educational policy. Many researchers are agreed with the key role of teachers in implementing educational policies as the formulation of policy is not enough since it cannot regulate the implementation at the classroom level (Dalin, 1993; Hargreaves, 1994; Vongalis-Macrow, 2007).

Therefore, due to the significant role of teachers, the perceptions of institutional heads were sought in relation to the capabilities of teachers to pursue the goals and objectives of ESD. Head teachers were also asked to elaborate on their role to enhance the practices of teachers. The analysis of interview responses of head teachers indicated that the majority of them

lacked awareness of ESD although they were aware of the significance of all imperatives and components of ESD. On the question of adopting effective strategies to achieve the objectives for ESD, they all supported the idea of practising interactive strategies in classrooms and adopting a student centred approach instead of traditional teaching methods by teachers. This approach is also identified by Masum (2010) when he elaborated that education traditionally is perceived as a one-way flow of information. On the other hand, environmental education can be two-way communication with full contribution and awareness by people of all ages. According to the head teachers belonging to public schools, the ministry of education has provided teachers with resource packs containing guidelines for teaching certain topics with interactive strategies of teaching and with less focus on traditional teaching methods but without reflecting the significance of such topics and strategies for ESD. In relation to this, according to a respondent:

‘Although teachers teach the topics related to ESD but students have to memorize them without any connections to the real world situation.’ (R3a)

A majority of respondent head teachers seemed satisfied with the performance of the teachers based upon examination results, discipline and punctuality. On the question of frequently adopted teaching methods by the teachers in the classroom, their responses were almost the same. Although they were not in the favour of traditional teaching methods, they described text reading, memorization and inquiry methods as the most exercising teaching and learning practices. During the interview several issues regarding teachers were discussed with head teachers. They mentioned the reasons due to which a majority of the teachers were practising traditional teaching methods and finding it hard to employ student centred teaching strategies to have better understanding for the topics related to ESD. These reasons were:

- Change in the medium of instruction
- Insufficient time
- Large class size
- Need for clear instruction for ESD and in-service training for teachers
- Lack of communication in schools in remote areas
- Stress of examinations.

**Changed medium of instructions** Head teachers indicated that the change in the content and medium of instruction of the curriculum had increased the workload for teachers and they were required to adopt more a progressive approach in teaching. Here they also mentioned the other main challenges for the teachers such as lack of information and

communication which added to their confusion and inability to adopt the proposed methods of teaching.

The introduction of new concept in the curriculum with new teaching methodologies and, most important of them all, is the change in the medium of instruction from Urdu to English, has created a sense of strain and an environment of reluctance among many teachers. The new curriculum with a changed medium of instruction has become hard to practise if a teacher was educated twenty years ago and has not been trained for teaching a new syllabus with a changed medium of instructions. According to head teachers, teachers are of a view that children find it very difficult to understand the content in the foreign language. It destroys creativity and logical thinking while the policy makers think that students have to face global competition and they can succeed on global level if they are educated in a global language. Moreover, according to them parents are generally in a view that for acquiring good jobs students must have command over English language because English is the official language in Pakistan. Ammon & McConnell (2002, p 7) supporting this idea by stating that English is generally perceived to be the dominant language of teaching for the future.

Most of the respondents also raised the issue of the lack of compatibility between teachers' existing understanding and practices and the teaching skills for new syllabus. Here the skills refer to student centred interactive activities that encourage problem solving and critical thinking skills. Although according to literature (as evident in chapter three) a competent teacher for ESD requires high level of competencies. This occurs because many of them had studied and trained for and had worked in a different system. Here in this study, head teachers were also of the view that for the new approaches in teaching, the teachers not only feel less comfortable but their contribution in traditional teaching is also destabilized although they are experienced, dedicated and hardworking.

The head teachers from private schools however presented a different picture. Unlike public schools, private institutions follow different textbooks in English language and the standard of education also varies from one institution to other based on fee structure. Two of the respondent head teachers from private schools were the owners of the schools as well. These schools fall in to the category of medium fee structure. Although they had the autonomy to run the school but above all, their main focus was to yield good results in exams. According to them:



‘There is tough competition among all the private schools for bringing good results in the exams, for this reason me and my staff always focus on the strategies that can bring good results in the exams.’ (R9b, R8b)

However, the head teacher from elite private school was of a view that the students and teachers in his school are comfortable with English as a medium of instruction. He added that the teachers receive instruction from their organisation in the form of lesson plans and resource packs that consisted of several projects and activities that can help to make teaching more interesting and effective.

**Insufficient time:** A majority of respondents expressed that teachers need to cover all syllabuses in a limited time and activity based teaching which is required for ESD, demands extra time. Brooks and Brooks (1999) believed that the process of learning supported by the constructivist approach takes time, more time than traditional didactic methods. The review of curriculum (in chapter five) indicates the presence of content related to ESD but due to traditional way of teaching for a time bound curriculum, it could not leave desired impacts. Hartsell (2006) also agrees with the same idea by describing that a typical curriculum consists of concepts of sustainable development especially at elementary level the time constraints causes a hurried presentation without opportunity for students to take ownership of projects and to take actions.

On the issue of time constraints for teachers, three of the head teachers from public schools expressed their views in a different way. According to them in a changed education system from grade I-III, the subjects of Science, Social Studies and Islamic education are integrated in one subject called General Knowledge. Therefore it lessened the burden on the teachers and on the students as well. As described by a head teacher:

‘Although now the class teachers from grade I- III are not burdened by overcrowded subjects but most of them still stick to old methods of teaching which is dominated by memorization of the content. In reality they are under the pressure of getting good results from their students.....’ (R3a)

The head teachers from private schools believed that teachers are more under stress of time and competition as their productivity is gauged by the results of the students. Alopse et al., (2007) hold the same views by stating that in this era of accountability, teacher’s workload has intensified. According to a head teacher from private school:

‘Teachers are evaluated on the performance of their students that’s why most of the time they adopt the teaching strategies to make the students memorize the content that would bring the good results in the exams.’ (R1a).

A head teacher of a private school which was a branch of private school systems described that they were not following the national curriculum and the curriculum that they were adopted was lengthy and they recounted:

‘Our teachers receive the lesson plans from the head office of this school system. The topics related to EE and ESD are well presented in the curriculum and these are also furnished with the teaching strategies given in the lesson plans but we are lacking in resources and sometimes teachers find it hard to practice all these strategies due to pressure of lengthy syllabus.’ (R2b)

A majority of head teachers believed that teaching the concepts of ESD with interactive strategies demanded more preparation and more reliance on supportive resources such as library or internet resources, which would add the workload of teachers.

**Need for clear instruction for ESD and in-service training for teachers:** Many issues regarding teachers were discussed with the participants. One of the main concerns in the interviews was related to teachers’ lack of familiarity with the concept of ESD and the other one is role of teachers in the implementation of ESD strategies. The head teachers stated that the absence of the concept of ESD in training programmes for teachers was the main hurdle in making the practices of teachers more practical and student centred. They mentioned that:

- the teacher training programmes are insufficient and not addressing ESD;
- teacher training programmes happen very rarely and these are very inconsistent;
- the need for a mechanism for policy makers to involve the majority of teachers before initiating any development or change in the curricula or syllabus.

Another head teacher from public school expressed her views by saying:

‘I believe teachers have become mechanically obsessed with the examination results and many take the competence aims as a ‘tick-off-list.’” She explained that many teachers became more focused on ticking off a list of competence aims instead of going deep into the material and seeing the linkages between different issues.’ (Ra 5)

In short almost all the respondents are agreed that the conducting of different activities to support ESD and EE needs to be supported by a variety of resources and time. Moreover it was not possible to organize such activities and make the students familiar with these concepts in the session time especially when the class size is extra-large.

**Lack of communication in schools in remote areas:** The other constraining factors identified by head teachers in relation to teachers included the absence of clear instructions to make the content related to the environment and society more significant and linking it to the local environment. Four respondents mentioned the disadvantageous position of

institutions for receiving fewer opportunities for experience and learning innovative teaching skills appropriate for the learning of EE and ESD. According to them some of the institutions in Pakistan situated in large cities always in a position getting instructions, teachers training and resources as compared to the institutions belong to rural areas. These institutions have a system already in place where they have teachers trained by the Ministry of Education or by NGOs. These teachers, especially the teachers from big private institutions, receive training from their administration or NGOs and they can work with their students accordingly, especially in relation to more progressive teaching learning processes. Therefore, it is easier for these schools to practice and involve students with the activities which are environmentally friendly and lead them towards sustainable development education. Such a view was noted by one of the interviewees who commented:

‘The institutions which are receiving awareness and support are at advantage. But the institutions without this support, due to neglect by administration, are facing difficulties as the school managers and the teachers are not trained for this.’ (R5a)

During discussion on the demands and constraints on teachers, two head teachers also indicated some positive signs. According to them the introduction of new pedagogies that are also required for ESD are being welcomed by the majority of teachers after initial confusion. These head teachers believed that the change in the curriculum or in the system also brought many benefits for the teachers’ personal and professional development. On the personal side it benefits teachers as they are deriving satisfaction from the new experience. On the professional side the head teachers felt that the teachers had been updated and they had improved in their teaching skills. One head teacher described it as:

‘The new curriculum with the concepts constituents of ESD is an opportunity for the teachers that they can upgrade themselves by teaching new and interesting things. Teaching such concepts with interactive strategies help them to overcome the boredom of teaching the same old stuff with traditional methods of teaching over a number of years. That is why the new curriculum is very good for personal and professional development.’ (R4a)

All these insight into the reasons for head teachers’ concerns have been derived in a context of Pakistan and in another study taken place in Cyprus Kadji (2013) also finds similar results. He found that some of the possible explanations of poor implementation of ESD are head teachers’: (a) lack of knowledge and understanding of ESD and how to implement it in their schools; (b) lack of confidence in their own and/or their school’s capacity to implement ESD and (c) limited commitment to the goals of ESD, especially in the context of mixed policy messages about the priority of ESD in relation to other educational priorities (e.g. a

focus on literacy and numeracy). More or less these constraints faced by head teachers for ESD are matched with the results of the present study.

#### **7.4 Impact for students**

Students are the main focus of whole education system. While discussing the constraints and challenges for the teachers, respondents reported several ways in which ESD impacts on the students too. A number of themes emerged through the views expressed by the head teachers. According to the responses of head teachers, students usually react in the same way as their teachers do. A head teacher described it as;

‘Students follow the attitude and behaviour of the teachers. If the teachers find it difficult to accept the change in the syllabus and in medium of instruction, students will also react like them.’  
(R1a)

Nearly all the respondent head teachers expressed that students are always comfortable with interesting teaching activities. The acceptance of the students depends upon the type of institution and geographical location of the institution, and most importantly involvement of teachers. The views of the head teachers reflected that the students are doing well in the institutions that are situated in the large cities and in the elite private schools. According to them the students in elite schools have access to a better learning environment and facilities and if their parents are educated then they take interest in all the learning activities that take place in the school and in the home as well.

Apart from demographic factors one other factor described by head teachers quite clearly was the pedagogy. According to one of the head teachers all the topics relating ESD are very interesting but few were above the mental cognitive level of the students especially the concepts present in the subject of General knowledge of grade III. Learning of all these topics effectively demanded a change in the role of the students in terms of achieving comprehensive understanding of the content rather than rote learning. It also demanded a changed atmosphere of the class room as opposed to more traditional settings and a changed role of teacher too.

Another source of tension pointed out by the interviewees was that the grade oriented system and the focus of the learning in examination results had not changed in the new system. This situation made students’ learning limited to memorization. According to one head teacher:

‘Our teaching system is examination oriented therefore, it does not help the students to nourish their talent rather it is grade oriented.’(Ra7)

Despite this, as mentioned earlier, the respondent head teachers were in favour of exercising interactive strategies and activities in the classrooms to develop students' interest and motivation. According to them the changed pedagogical demands and the new learning approaches brought many benefits for the students including:

- Activity based learning improved concept development.
- Development of critical understanding.
- Improved thinking ability.
- Break up of monotony and boredom of rote learning.
- Develop a feeling of responsibility towards society and environment around them.

All the respondents from private and public institution agreed on all these benefits for students. In short the views of head teachers revealed the demands, challenges and benefits for students in a changed system of education for ESD. It was noted that all the head teachers viewed the introduction of important concepts related to the ESD as very beneficial for the students. Head teachers from public institutions expressed their concerns for the changed medium of instruction as it is more beneficial for the students with better academic and socioeconomic backgrounds and also for the students who are studying in major cities and in elite private schools as compared to the students of rural areas. The head teacher further explained that it does not mean that the student from rural areas are not capable of adopting English as a medium of instruction or learning by student centred activities but these students faced many challenges relating to the absence of properly trained teachers and basic facilities in schools. All the respondents agreed that all the students are ready to learn in a changed classroom environment where they can learn through group work, working on projects, problem solving and critical thinking regardless of their demographic or socioeconomic status.

### **7.5 Role of Head teacher to support the strategies for the development of ESD concepts in schools**

De Grauwe (2000, p. 1) argues that much of the research has demonstrated that the quality of education depends primarily on the way schools are managed, more than on the abundance of available resources, and the capacity of schools to improve teaching and learning is strongly influenced by the quality of leadership provided by the head teacher. Providing any support by head teachers to teachers and students was also an important area for discussion in the interviews. In the literature the head teacher's support was conceptualised as the creation of a 'supportive environment in which one can find and speak his or her own voice' and included communicating trust, encouraging risk taking, honouring teachers' opinions

and developing teams. The role of the head teacher in facilitation, which was viewed as more proactive than support, is viewed as stimulating critique by asking questions, requiring justification of practice based on personal practical knowledge and providing alternative frameworks for thinking about teaching and learning through staff development opportunities, readings and discussion of ideas (Reitzug 1994, p 290).

By keeping in view all these arguments, this study was undertaken to explore head teachers' support for adopting different teaching strategies or the management of new policies as a leader. The two core components of effective leadership for ESD as indicated by the literature (Kadji-Beltran 2013) were explored in this study: (1) developing staff expertise in ESD and (2) coordinating a coherent approach to teaching and learning for sustainability and managing the school's operations and use of resources according to sustainability principles.

The exploration of the personal strategies of the head of the institutions reflected their priorities in the system. Each respondent elaborated and outlined their individual approaches which depended on the location of their school, nature of the institution and level of motivation as a leader. It was evident by the discussion with the head teachers that they tried to get best out of their resources and authorities for steering the institutional processes and achieve better performance. Several issues related to the teachers remained under discussion throughout all the interview sessions. On the question of providing any kind of possible support to the teachers for the implementation of interactive strategies for ESD, various kinds of responses were obtained. However, they all believed in the significant role of teachers in the process of institutional activities and they also believed that the learning of the students can be improved by nurturing and capturing the potential of teachers. A majority of head teachers, who focused on the support for teachers, referred to a number of practices relating to training, guidance, peer support, mentoring and provision of resources and enhanced communication with the teachers. All the participants agreed that they organize frequent meetings with the staff so that they can share their ideas and problems. Commonly cited activities to support the teachers were:

- Organize formal and informal meetings with the staff.
- Observations of class room teaching.
- Informing the higher authorities relating the requirements of teacher to enhance their teaching by communicating with them.
- Observing special events and days.
- Try to establish a comfortable environment for teachers and for students as well.

Almost all head teachers described the arrangement of formal and non-formal meetings with staff as an important part of the support that they can provide to teachers. According to majority of head teachers ((R1a, R2a...R6b...R9b) usually they call the staff for a meeting once in a month and sometimes more than this if they feel the need to communicate something important to the teachers. In the formal meetings teachers describe the problems they are facing related to the resources, behaviour of the students and relating to the curriculum. These meetings are also a beneficial source of learning and can provide solutions to many problems when various teachers discuss their problems and share their experiences with the head teachers and with their fellow teachers too.

Further, a head teacher added:

‘I check lesson plans of the teachers once in a month based on the resource packs. Teachers prepare lesson plans including many teaching strategies like group work, critical thinking activities and doing experiments in the subject of science. Teachers also get help from AV aids that comprised of posters, charts models and pictures.’(R2a)

Despite confirmation of the activity of checking the diaries and lesson plans of the teachers quite often some head teachers also expressed a few reservations towards the teachers. They were quite explicit in stating that although the lesson plans reflect the teaching strategies adopted by the teachers, sometimes these are limited to writing not practising.

‘I check the lesson plans whenever I find time but the activities mentioned in them were seldom carried out by a small number of teachers because teachers from the old system feel themselves comfortable to exercise traditional methods of teaching and sometimes they find it difficult to act upon due to lacking in resources and time.’ (R4a)

Another head teacher expressed the same views by describing:

‘I always try to find time to check the lesson plans, notebooks and diaries prepared by the teachers. I always appreciate and encourage the teacher who is performing his/her teaching with the help of developing critical thinking and problem solving skills. I believe to develop certain skills among the students does not require any specific resources but the skills of teachers.’ (Rb5)

When the head teachers were asked whether they support the observing of different days to make the students involved more actively other than the routine classroom activities, the majority of the head teachers responded positively for conducting different activities as extra-curricular and co-curricular activities. Moreover, head teachers from both public and private institutions responded in the favour of observing Earth Day, cultural activities and conducting different speech competitions and quizzes on environmental issues as well. Although they are in favour of conducting all the extra-curricular activities for ESD but in practice they find it difficult to exercise due to their unfamiliarity with ESD and pressure of

managerial activities. According to seven head teachers, (three from private schools and four from public schools) they observe Earth day in which students prepare posters and paintings to save the earth from pollution. Students create many things out of waste and they exercise many activities to make their school, home and community clean.

## **7.6 Supports from Government or NGOs**

Awareness of environmental problems and concerns in Pakistan are relatively new, and to some extent public outreach programs are conducted through print and electronic media and both the government and private sector are involved in it (IUCN 2010). In discussion with the head teachers on the issue of getting support from any government organization or private organization for conducting co-curricular and extra-curricular activities in the form of instructions and resources, many interesting facts came into light. The interviewees noted that they received insufficient support from government often limited to written instructions on page (R1a, R5a).

On the point of getting support from outside the institution, three head teachers of public institutions mentioned that five years had passed when they had received instructions from the Ministry of Education for establishing environmental clubs in schools and these are not active any more. Interestingly, a head teacher from public school in small city outlined that with the collaboration of DFID they were receiving funds, training for teachers and instructions for organizing activities on environmental and social issues. Two head teachers from private schools mentioned the following interventions by WWF to raise the awareness of EE. According to them their school systems have signed a Memorandum of Understanding (MoU) with WWF to support a school awareness programme. This included:

- Provision of training material and educational modules to raise the awareness of teachers.
- Formulation of environmental clubs in schools,
- They also provided the material linking Islam with conservations.
- The student-based activities such as, different competitions on environmental themes, environmental events celebrations.
- Raising cleanliness campaign.
- Preparation of charts with Islamic quotations regarding environmental conservations.

While discussing the support from government and NGOs head teachers also pointed out several constraints and challenges in performing their duties.



### **7.7 Constraints faced by head teachers**

A wide range of issues were reiterated by the respondents relating to the problem faced by head teachers in initiating change in the teaching processes or following the guidelines given in the policy documents. Here the root causes of the constraints faced by head teachers are widened beyond the institutions including problems related to planning and policymaking processes as well as the question of the political will to implement any new programmes in the institutions.

Therefore, various problems emerged after a discussion with head teachers and these have been grouped in relation to the issues, as set out below:

- Issue of gap between policy and implementation
- Autonomy of head teachers
- Lack of resources
- Pressure of administrative responsibilities.

Poor implementation of the educational policies was thought to be a major issue to diminish the possible impact on awareness and implementation of ESD. It was revealed through interview data that the main cause of unfamiliarity among the head teachers for the term ESD is that it is not specifically mentioned in the curriculum and in instructions received from Ministry of Education. According to participants there is less involvement of teacher in the process of policy formulations to make it more practical and bridging the gap between policy and practice.

Hursh, (2010) believes that enhanced leadership could create the governance structure necessary to ensure the longevity and sustainability of ESD. It is also argued that a good deal of motivation and awareness for ESD in a head teacher is insufficient if it is not a part of curriculum and standard agenda set by policy makers. Jackson (2007) moreover, found that a constraining factor in connecting teachers with sustainability expertise appears to be head teachers' lack of knowledge of the specific sources of appropriate expertise. This can be attributed to their own limited experience and understanding of ESD and sustainable schools.

The issue of autonomy of head teachers as a hindering factor was also discussed during the interview. This can be attributed to the fact that the Pakistani educational system is centralised in terms of the school's curriculum, timetable and funding, thereby posing limitations to the head teachers' authority for granting any kind of support outside the system's structural parameters.

In a centralized system of education such as Pakistan where there is a hierarchy of administration, schools have to seek advice and approval for anything required from the District Education Officer (DEO) and he /she is also bound to act upon according to higher authorities. In this way the autonomy of the head teacher is restricted. For example according to one head teacher:

‘If we want to take the students on a field trip we have to write to AEO (Assistant Education Officer) he will write to DEO. If these authorities will approve then we can go otherwise we leave it.’ (R2a)

‘It is very hard for us to take the students outside on a field trip because we have to hire private transportation due to non-availability of any proper vehicle for school and we are not allowed to take the students outside the city due to security concerns.’ (R4a)

Pashiardis (2004) presents the same kind of findings of a survey by describing that in a centralised educational system school curriculum, timetable, funding are posing limitations to the principal’s authority for granting any kind of support outside the system’s structural parameters.

Several researchers such as (Pashiardis and Orfanou 1999, Thody et al. 2007) support the same situation by arguing that head teachers’ role as school leaders, however, is hindered by: (a) the regulations and legislation that determine their duties and authority in schools which focus on daily activities and performing managerial and administrative tasks; (b) their lack of interest in their own professional development and improving their leadership skills and (c) the absence of effective principal education programmes.

On the other side all the private schools in Pakistan are decentralised and most of the head teachers of private institutions were the owner of the school as well. They emphasised exam oriented activities by stating that the parents who are paying fees for their children are expecting good results in exams. These schools were established in small buildings with no play grounds or and any other outdoor activities as well. Most of the teachers in such institutions were inexperienced and never received any professional training. The head teachers who were owner of the private schools as well were of the view that they could not take the students outside due to security concerns and they added that the school area is not sufficient for organising different kind of extra-curricular activities.

Almost all the head teachers from both sectors were not satisfied with the provision of resources to their schools and most of the time they claimed it as the reason responsible for not having better and interactive learning environment for students. The majority of

respondents felt themselves under the pressure of administrative and official tasks and found it very hard to find time for the involvement with the classroom activities.

These constraining factors also point towards the principals' limited commitment to ESD. These include the importance and ways of generally empowering staff, particularly in encouraging critique of current approaches and the exploration of alternative possibilities for curriculum, pedagogy and policy.

### **7.8 Suggestions by Head teachers to improve the process of implementation ESD in schools**

Head teachers are very significant in implementation of educational policies as they are the link between practitioners and policymakers (Bush, 1995). Therefore they are in a strong position to propose certain measures to improve the areas of weakness. Accordingly the last section of interviews was seeking suggestions and recommendations for improvement. These suggestions were linked with the previously discussed themes and challenges which emerged during the interviews to diagnose the conditions of ineffective implementation of ESD in the present scenario.

Usually their recommendations revolved around the main issues: initiatives for raising the awareness for ESD, the change in examination system and teacher training programmes for ESD, provision of resources and basic facilities for schools, autonomy of head teachers with less burden of clerical work load and need for proper implementation with the help of research, monitoring and involvement of teachers in curriculum planning.

All these suggestions and recommendations have been discussed in chapter 9 to link them with the overall recommendations of the study.

### **7.9 Conclusion and summary**

This chapter presented the interview data analysis in the form of the summaries of emerging themes along with illustrative quotes identified from the data. Themes were sorted out after transcription of the data. Then the emergent categories in every theme and the summary of issues within each category are articulated. Further the relevant literature is also drawn to analysis. The analysis of the perspectives of head teachers revealed a scenario of ESD in schools, ranging from issues in its implementation to suggestions for improvements. The practical significance of these findings is the identification of specific areas of needed professional development for head teachers.

The lack of conceptual understanding affected the capacity to introduce ESD on the part of head teachers. Almost all the respondents believed that schools should provide learners with experiences and opportunities to develop problem solving skills and the ability to think critically. The need for diverse teaching approaches and the use of a variety of teaching resources was acknowledged as an important step to ensure this process.

All the head teachers were consistent in their views about teacher training and active involvement to achieve the goals for ESD. They all believed that all the preferred strategies require the direction, content and targets which would lead to a well-thought out and well-planned teaching programme with a long term impact. Head teachers from private schools described that they receive fewer opportunities for teacher training programmes than of public schools. This situation is also evident in a survey conducted by DFID in schools of Punjab. According to them in subject-specific methodology training, public school teachers received more training than that of private schools (Coleman, 2010).

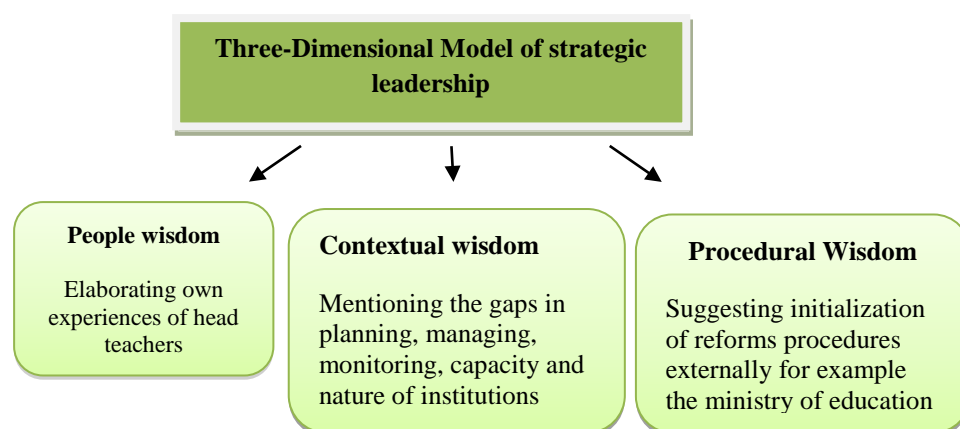
Another theme where the ideas of all the head teachers converged was the problems of the managing ESD in teaching process. The head teachers identified many problems and challenges to achieve the objectives of ESD and also suggested the approaches to achieve the desired goals. For example one important approach to effective implementation of any policy was its consistency. This must be grounded consistently in the changing political situation in Pakistan. Respondents identified a communication and coordination gap between policy makers and school teachers. Head teachers from public schools with a centralised system were agreed on having a monitoring system in the classroom or through examination system to ensure the practices of interactive activities of teaching. At the same time they also mentioned the lack of independence in order to make decisions to address their immediate situations.

Elite private schools in Pakistan were working under the centralised system of a parent body such as the Beacon House school system and City School system. These are more organised and they had signed a MOU with WWF. Respondents from such school systems were in the favour of all the interactive activities to make the teaching process interesting. They also mentioned that they had their own teaching training programmes organised by their management. In the low cost private schools the head teachers seemed preoccupied with the burden of examinations and their staffs were not well qualified with professional training. They described that although their teachers teach the concepts related to the ESD as these are

present in the text books, students get only theoretical knowledge due to insufficient time, lack of resources, and the presence of a competitive environment among the private schools depending upon the grades of students.

On the issue of teachers' development, head teachers believed that the teachers were not provided with skills, information, guidance, and teaching resources to implement the teaching strategies for the development of ESD effectively. They suggested the need to develop the understanding and skills of the teachers to make them play their role as effective and active agents of any change in the educational system.

The views of the head teachers can be better referred to Davies' (2009) three dimensional model of strategic leadership. The ideas of head teachers seemed to converge around the concepts of people wisdom, contextual wisdom and procedural wisdom. The concept of people wisdom is evident when the head teachers described their experiences and they elaborated on the non-involvement of teachers and head teachers in the policy making. They also demanded the need for teacher training to make their performance better and effective. The concept of contextual wisdom emerged as a prominent theme in the responses of head teachers when they repeatedly mentioned the gaps in planning, managing, monitoring, existing resources, the capacity and nature of institutions. While the concept of procedural wisdom presented by Davies (2009) is more evident in this scenario in which the reforms or changes under study initiated externally. The Ministry of Education is responsible for policy formulation and the schools are the arenas for the implementation of the policy.



**Fig.7.1 Three-Dimensional model of strategic leadership**

**Table 7.1: Summary of the views of the head teachers**

<b>Support provided by head teachers for ESD</b>	<b>Constraints for head teachers</b>	<b>Suggestions by head teachers</b>
<p>Involvement and monitoring of teaching process.</p> <p>Informing the higher authorities relating to requirements and difficulties faced by teachers.</p> <p>Observing special days by conducting different events.</p>	<p>Lack of communication between head teachers and policy makers.</p> <p>Non-existence of autonomy of the head teachers.</p> <p>Pressure of administrative responsibilities.</p> <p>Lack of resources.</p>	<p>Involvement of head teachers and teachers in policy making.</p> <p>Uniformity in education system.</p> <p>Regular session of in-service teacher training.</p> <p>Provision of basic facilities in schools.</p> <p>Need for proper monitoring and facilitation for teachers.</p> <p>Well-resourced and clearly directed curriculum is needed for ESD.</p>

## **CHAPTER EIGHT**

### **Discussion and Findings**

#### **8.1 Introduction**

This chapter draws together and discusses the emergent issues and aims to shed light on main findings of the study in the backdrop of the existing research literature to identify some similarities and differences. The purpose of this study was to undertake systematic review of ESD in the education system of Pakistan and so in this respect it was an exploratory study. It was designed to investigate the understanding, awareness and practices of teachers in the area of ESD keeping in mind the four thrusts of ESD suggested by Agenda 21, improving access to quality basic education, reorienting existing education programmes, developing public understanding and awareness and providing training.

Teachers and head teachers from both public and private schools and prospective students enrolled in B.Ed Honours programme were selected as the participants of the study. To conduct field study, ten schools were selected and, schools considered for the study were chose from different sites. For instance half of them were selected from small city of Pakistan and half of them were chosen from large city of Pakistan, Lahore.

In terms of physical conditions and infrastructure, the study found that great diversity exists between private and public schools, even differences are present among public schools of urban areas and rural areas and so with the private schools too (as discussed in field observation chapter six). However, in terms of perceptions and practices of teachers the situation is almost same. It cannot be claimed that the views presented in this study are representative of all Pakistani teachers because Pakistan is a vast country with four provinces and this study focused on only one province, Punjab. However, it seems more than likely that these findings represent a large stratum of the teaching force especially in Punjab as there is a centralised educational system and all the public schools follow the same national curriculum and text books prescribed by Punjab Textbook Board. In contrast all the private schools follow different syllabus and text books (as discussed in chapter5 curriculum analysis). Despite all the teaching methods and school culture is almost same everywhere due to centralised system of assessments except a few elite private schools. The literature review in chapter three presents the role of ESD in educational system. The curriculum analysis in chapters five and empirical research in chapter six and seven of the study presented the perceptions of teachers, student-teachers and Head teachers of ESD have been elicited from the study. In the following section the themes which emerged from

the analysis of the responses of teachers, student-teachers and head teachers are summarised. These themes also support the three main questions of the study.

## **8.2 How is Sustainable Development Education defined?**

The first research question of the present study is the understanding and meaning of sustainable development education. For this purpose, literature related to ESD and the perceptions of participants of the study were explored. These were categorised in two groups which are as follows:

Theme 1.1 Sustainable Development Education defined in literature

Theme 1.2 Perceptions of participants for ESD

### **8.2.1 Sustainable development education defined in literature**

A wide range of literature is available defining the meanings and scope of sustainable development education. It is evident from the review of the literature (chapter 3) that sustainable development is a broad term and it is a high priority for all nations. However, the focus of sustainable development varies in different situations. The definitions in the literature also revealed that sustainable development or sustainability is not a new idea; it is deeply embedded in the culture and religion of different nations under different forms and names by emphasizing on taking care of resources and other human beings.

In chapter three of the study several definitions have been quoted from the literature. It is widely believed in the literature that idea of ESD emerged from the concept of environmental education and now environmental education is thought to be an important part of ESD along with economic, social, political aspects (Hesselink et al, 2002). There is a consensus in the literature that the idea of sustainable development is made of three essential interrelated components, namely environment, society and economy. The Burntland Commission (1987) has presented a popular and widely accepted definition of sustainable development as:

“development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”

This definition is thought to be a comprehensive in nature and at the same time it has started a debate about the need to evolve the definitions of sustainable development. Several researchers claim the vagueness of this definition because cleverly it is capturing two issues the concept of need and limited use of resources together. The problem of environmental degradation and unlimited use of natural resources commonly accompany



the economic growth and yet the need for such growth to alleviate poverty (Sharma, 1993). Stevenson (2006) believes that ESD and sustainable development (SD) are contested concepts and invariably the word 'development' is at the heart of the debate.

During the last three decades the phenomenon of ESD has initiated an interest among the theorists and researchers. With the varying degree of cultural, social and political background, ESD has taken different level of progress in different time and space zones, which has emerged as a subject of interests for individuals and research projects. As evident in the literature it is widely realized that the field of sustainable development is an idea of Western world and based in developed countries. Noticeably, most of the literature linking education and sustainability is drawn from Western contexts, and of course there are major challenges for sustainability facing these societies, but they are likely to be different from those facing developing countries. Given the developmental challenges mentioned earlier in respect to countries such as Pakistan, any list of actions for sustainability is likely to emphasize meeting basic needs and improving the quality of life, rather than dealing with problems associated with mass consumption. Therefore, it must be realized that we need to develop ESD on place-based knowledge (Koger and Winter, 2010).

Therefore, UNESCO (2005) presented a very comprehensive definition of ESD encompassing the learning of all the principles of sustainable development such as: human rights, poverty reduction, sustainable livelihoods, peace, environmental protection, democracy, health, biological and landscape diversity, climate change, gender equality, and protection of indigenous culture.

Another point regarding pedagogy, emerged from the review of literature is that ESD is a new model of education that builds on the existing good practices. ESD places emphasis on practical skills while blending knowledge, skills and attitudes together. ESD is based on student centred learning activities (Janse, 2000). Sustainable development literacy requires a complementary understanding of elements of environmental literacy, but more generally requires an understanding of interdisciplinary and requires the acquisition of process-based tools capable of managing unexpected change (Rammel, 2003). One of the key aims ESD stated in the commitments in Earth Summit 1992 is to reorient education towards sustainability-but it is believed as huge challenges to traditional institution of education where teaching and learning take place with traditional methods.ESD can be defined as to

identify and establish the linkages between the principles of sustainable development education and the long-term economic well-being of every nation.

In formal education system the objectives of ESD can be achieved by “pulling together” the various disciplinary strands providing the students a holistic understanding of sustainability. It should increasingly be context based, with the emphasis on local circumstances concerning the environment, culture and policy. In some countries, the focus might need to be on developing democracy and equality as a priority goal for sustainable development; and in other countries, it might need to be on serious environment issues or social or economic problems that have to be addressed. Therefore, a majority of researchers believe that ESD themes can be addressed through a multidisciplinary approach with a focus on a change in delivery of the content (STables and Scott, 2002, McKeown and Hopkins, 2003 and Jenkins and Jenkins, 2005).

### **8.2.2 Establishing a working definition of ESD**

- Earlier in this study; from the literature review it has been established that:
- ESD is the learning of acquiring ecological, economic and social sustainability for the well-being of a nation (McKeown 2003).
- ESD can be defined as pulling together the strands of sustainability from different disciplines (STables and Scott, 2002, McKeown and Hopkins, 2003 and Jenkins and Jenkins, 2005).
- ESD requires a complex adaptive system approach to provide a wide range of conceptual and material content, illustrate interconnections and interdependence, and stress dynamic rather than fixed structure and processes (Warburton, 2003).
- ESD should be context based and emphasis should be on local social and economic circumstances (McKeown and Hopkins, 2003).
- ESD can be best practised in through student centred activities underpinned by constructivist approach (Janse, 2000).

All the definitions and approaches (given in chapter three) towards ESD lead toward a meaningful definition for all stake holders in a formal education system. Looking at all the list of characteristics relating to ESD discussed above it is clear that demands and aims of ESD is not uniform in all the cultures and societies. The literature review and empirical part of the study reveals that ESD demands a set of skills and a multidisciplinary approach.

Consequently as a result of this study and review of literature a working definition of ESD can be suggested as:

“Sustainable development education is a process of learning to make decisions for the well-being of a nation considering the preservation of natural resources, ecology, culture and democratic values keeping in minds the local demands in global context. It demands adopting a coherent and interdisciplinary approach with a readiness of whole educational system for initiating it.”

### **8.2.3 Awareness of Teachers, Student-teachers and Head teachers of ESD**

It is evident from the wide range of literature reviewed that ESD is well recognised and efforts from several scholars and international organizations like UNO and UNESCO have emerged since last three decades. The levels of achievement of the objectives of ESD are different throughout all the nations. In this study the level of awareness and understanding for ESD among the practitioners (teachers, Head teachers and student-teachers) in Pakistan was explored through questionnaires and interviews, underpinned by a brief curriculum review.

The study found that the participants or the practitioners generally were not aware of the term sustainable development education. Therefore, two easy and understandable definitions were given in the questionnaires (see appendices: 2) with a briefing from researchers too. This enabled them to think about the practices, components, aspects and objectives of ESD. During the field survey for this study, the term Environmental Education was a popular alternative for the participants. Observation, questionnaire data and interviews with the participants showed that using the term is not necessarily the most conducive strategy to create engagement and interest among students. Rammel (2003) support this finding by stating that sustainable development literacy requires a complementary understanding of elements of environmental literacy but more generally requires an understanding of inter disciplinarity and requires the acquisition of process-based tools capable of managing unexpected change. Hesselink et al. (2000) supports this by stating that ESD is regarded as the new generation Environmental Education. Similar kind of results can be found In USA where the results of conducted survey indicated that a vast majority of students surveyed perceive sustainability in a manner that emphasizes purely environmental factors (Brian et.al, 2015).A research on teachers’ perceptions of ESD yield different results by concluding that not surprisingly teachers conceptions of ESD relied heavily on the Citizenship Education framework, emphasising in particular the

importance of taking responsibility, human action and making a difference (Summers 2006).

Analysis of interview data reported no significant difference in environmental awareness between government and private school head teachers. Although in most of the statements head teachers belong to private sector showed more positive attitudes towards environmental concerns. In the study reported in this thesis the interviews with head teachers and informal discussion with the teachers revealed that few of them were familiar with the term sustainable development during their higher education or through the media. While prioritising the key aspects of ESD, a majority of the participants including teachers, student-teachers and head teachers perceived learning economic development and learning to take care of environment as important aspects of sustainable development education. This trend reflected the two main factors, one is prior knowledge of environmental phenomena and the other one is, being the citizens of a developing country, most of their concerns were towards economic development.

The results of questionnaire and informal talks with student-teachers (STs) also indicated that STs in Pakistan think of sustainable development only in terms of environmental care with less understanding to see the whole system in the context of economical, ecological and social dimensions of sustainable development. If prospective teachers cannot link these dimensions, they will not be able to communicate sustainable development to the students in schools. The questionnaire survey revealed that majority of the participants seemed less concerned about the learning of democratic values and social values as a part of ESD. Informal discussion with the participants revealed that although, they supported the idea of ESD but at the same time they were perceiving ESD as a Western agenda and being a part of Muslim society, they considered Islamic teachings as the main determinant of values. They were in a view that modern technology and media, deteriorating their values and social systems by introducing new trends. Interviews with head teachers and school observations revealed that daily morning assembly contains teachings of democratic values and human rights. More teachers from the private schools were in favour of learning to develop social values as a key aspect of ESD than teachers in public sector. This appeared to be same in relation to learning to know about shared values. To explore the understanding of the participants of the study, they were asked to prioritize the key approaches for achieving ESD objectives.

### **8.3 Approaches to introduce Education for Sustainable Development in schools and in ITE**

Approaches introducing ESD in schools were another important issue explored in the present study. In this regard the perceptions of participants related to appropriate approaches for exercising ESD were explored through questionnaires and interviews. A majority of participants did not consider/support the idea of introducing ESD as a distinct subject within school curriculum, though one interviewee emphasised introducing ESD as a distinct subject in schools due to its vastness and importance. However, the participants were of a view that nearly all school subjects can play an important role in developing ESD. The data from this study showed that participants considered social studies and science are the most appropriate subjects for introducing such concepts. Moreover, they considered Islamic studies and Language studies to be also appropriate for ESD learning. On the other hand participants considered Mathematics as least appropriate subject for the teaching of sustainable development themes.

Head teachers also supported same kind of views in the interviews by stating that the subject of science supports the ideas of environment and nature while social studies and Islamic studies focus on social and democratic values and for economic values as well. These responses are in line with the approaches present in the UNESCO documents to achieve the goals for ESD. UNESCO's International Implementation Scheme ESD (2005) states that ESD should be interdisciplinary, holistic and participatory, with 'learning for sustainable development embedded in the whole curriculum, not as a separate subject (UNESCO, 2005, p.4). Pigozzi (2007, p 28) supports adoption of cross curricular approach for ESD by stating that we do not need a subject called 'sustainable development' in the curriculum, but to reflect the interaction of numerous actions in many different spheres, so the ideas, issues, topics and problems related to Sustainable Development should be integrated into all aspects of learning.

Empirical study revealed that despite supporting the ESD as cross curricular theme by the participants, none of the school from both sectors exhibited the ESD as a whole school approach. UNESCO's policies for the promotion of ESD support a whole school approach. A whole-school approach supports active and participatory learning by involving the entire school, including students, teachers and administrators with ESD fully integrated into the curriculum as the driving factor. To achieve this ESD calls for sustainable development to

be integrated throughout the formal sector curriculum in a holistic manner rather than being taught on a standalone basis. Hargreaves (2008) refers this philosophy to notion that ESD is the education *for* sustainable development, rather than education *about* sustainable development.

The prescribed curriculum is the main source of learning for the students but the activities taking place in the institutions as extra-curricular prove to be effective for conveying information and enhancing motivation. These are the part of ‘hidden curriculum’, refers to those things students learn - values, attitudes, opinions – that are not part of the overt curriculum (Carr, 2016). Interviews with head teachers and school observations revealed that daily morning assembly contains teachings of democratic values and human rights along with environmental protection messages such as helping neighbours and relatives, cleanliness conservation of resources and with an economic system of simple living and helping needy people around. More teachers from the private schools were in favour of learning to develop social values as a key aspect of ESD than teachers in public sector. This appeared to be same in relation to learning to know about shared values. The promotion of ESD through extra-curricular activities were also supported by head teachers although, a small number of teachers were not in favour of this approach as they believed assessment stress and an overburdened curriculum did not allow them to involve students in extracurricular activities frequently.

#### **8.4. The current situation of practicing ESD in primary schools and in ITE in Pakistan.**

To address this main issue of the study the analysis of the curriculum was undertaken and few relevant questions were asked and consequently the following themes emerged as:

- ESD in primary grades and in ITE (B.Ed Honours) curriculum.
- Preferred and adopted pedagogies for content related to ESD by teachers.
- Support from Government and institutions/Head teachers for promoting ESD In schools and in ITE.
- Challenges and barriers responsible for the ineffective practices for ESD.

##### **8.4.1. ESD in primary grades and in ITE (B.Ed Honours) curriculum**

The Pakistani education system has a perspective of environmental education and developmental education and certain themes do appear in the curriculum and in text books.

For this purpose the text books for public primary schools were considered due to their uniformity in all the schools. While the text books used in private schools could not be reviewed as every school has a different set of text books but they follow the national curriculum to some extent.

The Ofsted pointed out in their 2003 report, 'ESD is not a new concept; it has evolved from a mixture of environmental as well as development education ideas and links to a number of related areas concerned with economic, social, personal, and citizenship issues (Ofsted, 2003). The research survey identified a wide-range of curricula connections in response to the sustainability agenda in primary Grades curriculum and in ITE (B.Ed Honours) curriculum (details in chapter 5). A brief review of curriculum (for primary grades and ITE) based on the constituent and principles of ESD determined by UNESCO, presented the level of presence of topics relating ESD.

The subject of General Knowledge (grades I-III) has introduced relevant themes such as environmental pollution, biodiversity, the introduction of cultures, good habits and economic activities. With the use of curriculum analysis, the study found that the Pakistani public school curriculum for primary grades provides diverse but not always obvious possibilities for emphasising education for sustainable development. The national curriculum wing of education department of Pakistan has tried to insert environmental messages into government text books but these are insufficient to address the main environmental concerns. It is also revealed that term sustainable development was not used in text books. As argued by (Hart, 2003; Alsop et al., 2007) although, the sustainability and ESD issue has become widely recognized in international media, the cause of meetings, committees, and national address, it is largely absent from school curricula.

In the same way the curriculum of B.Ed Honours was analysed to explore the topics related to ESD. Several targeted issues are found in the curriculum of B.Ed Honours based on the key principles of ESD (see Appendix 2). However, the overall picture is patchy with major gaps in areas such as sustainable production and consumption, eco-efficiency and national and international sustainable development policy and above all the absence of term ESD from curriculum and a coherent link between the relative topics.

A major gap apparent is the deficiency of educational system in making connections of all the topics related to ESD. Voodrow (1988) supports the same situation by stating that such

topics are present in the curriculum but teachers teach these topics without evoking student's interests and enthusiasm. Moreover, Sitarz (1998, p 200) mentioned that ESD is not a new course or new content, but rather "it involves an understanding of how each subject relates to environmental, economic and social issues.

Another gap appeared during the curriculum review for both primary grades and B.Ed Honours is less coverage of global citizenship which aims to inculcate the student to think not only at national level but internationally in terms of human rights democracy and environmental concern (Davies 2006). The inclusion of content related to global citizenship is increasing in text books worldwide for example Latin America and the Caribbean registered the largest increase, from 20% of textbooks mentioning global citizenship in 1980s to 50% in 2000s (Bromley et al., 2016).

During informal talks with the student teachers, they mentioned a recent event that took place in the campus on 'Save the Earth'. They also showed the pictures with their recycling projects and posters for environmental care. According to them such activities are evidenced to enhance certain teaching skills such as, project work, cooperative learning and critical thinking.

The student teachers have an opportunity to put what they have learnt in their institution into practice during their teaching practice programme in schools. This training takes place in every teaching programme. The ITE programme states that there are four different opportunities for the student-teachers to practice their teaching skills in schools at the end of each year. In the B.Ed Honours programme practical of teachers' training comprised of six to eight weeks of training at the end of the year.

#### **8.4.2. Preferred and adopted pedagogies for content related to ESD by teachers**

Interestingly it is found through the study that a difference is found between preferred and adopted pedagogies for ESD. In the questionnaire a set of pedagogies were given to know the priorities of teachers for adopting them and to what extent they are actually practising them. The data showed that all the participants believed in student-centred teaching methods as the appropriate techniques to develop ESD. The support for using student centred methods is in line with the educational policy in Pakistan. The vision for teaching in national education policy encompasses the aims to equip students with necessary skills through student-centred teaching by adopting modern pedagogical techniques to foster the



cross-curricular competencies, creative and critical thinking, problem solving and independent learning (National Education Policy, 2010. p. 38). Bourn (2016, p 121) states that teachers can utilise alternative pedagogies that create space for relaxed, collaborative, co-constructed learning and encourage critical thinking.

The results from empirical study revealed that the majority of the teachers supported the idea of teaching through interactive learning but in practice most of the time they adopted the traditional teaching approaches, such as didactic teaching, worksheets or rote learning. Some researchers have described inconsistencies between teachers' beliefs and their classroom practices (Ertmer, 2001; Fang, 1996; Kane et al., 2002). For example, Fang (1996) described a number of studies in which researchers found little relationship between teachers' beliefs and their instructional reading practices, and suggested that contextual factors interfered with teachers' ability to consistently apply their beliefs in practice. Participants of the study also indicated many reasons to elaborate the approaches they are practising in classrooms such as: the assessment system, an overcrowded curriculum, lack of resources, inadequate teachers training and large class sizes.

Another crucial issue which has emerged from the present study is the dominance of traditional teaching methods in delivering the content related to ESD in the schools and in ITE. The literature review also presented a strong link between ESD and pedagogy. It indicates that traditional teaching approaches are unable to keep the pace with recommended pedagogies for ESD and these are necessary if we wish to promote critical thinking, creativity and problem solving skills. Adopting new pedagogical approach has proved to be very difficult for Pakistani teachers as they traditionally depend on textbooks and rote memorization (Memon, 2007).

The curriculum guides for teachers at primary level were also observed to identify pedagogies and opportunities suggested for teachers and their relevance with ESD. These guide books however, do not contain the term ESD but the teaching guidelines for the content related to ESD (details in Chapter 5) are present for the teachers. These books also contain pedagogical guidelines for related topics such as biodiversity, renewable resources of energy, human activities and environment, human relations and values. These guidelines were mostly based on student centred activities but lacking in project work, outdoor activities and establishing a link with ESD. Johansson (2011) argued that it is important that such a reading of curricula guides should not be interpreted as a quality assurance

certificate. Rather, it could be wished that such guidelines would facilitate a reorientation of existing education programmes towards education for sustainable development.

In responses to the questionnaire, the STs were of the view that the most appropriate method to deliver ESD is the method in which *students work in projects and gather information from other sources* (Table 6.8). Moreover, majority of STs supported the critical thinking as an effective teaching and learning skill for ESD. In contrast they also believed that the most frequently practised teaching method in their training programme is *the teacher lectures and the students take notes* (Section 6.9.2).

The student-teachers further supported their preferences for exercising student-centred methods by referring to the idea that the teachers lecture and the students take notes as the least effective teaching method to teach the content related to ESD. On the other hand the teachers have presented interesting results in survey. All teachers from both groups agreed on practising '*the study of text book*' method in classroom, interestingly nearly all of them were in favour of the student centred and interactive strategies given in the questionnaire (Section 6.8.1). However, the practices in schools from both sectors and in ITE institutions are characterised by teacher-centred methods, especially lectures, rote learning and memorization of text books. All the teachers who participated in study were of the view that the most common adopted method in classrooms is *making students do more practice for their examinations by reading the text books*'. On the matter of importance of this teaching method, there is difference in opinion among public school teachers and private school teachers. As the results indicated, 68% of the private school teachers and the 96% of the public school teachers considered the reading of text books as an important method for learning. Interestingly the views of student-teachers in relation to this are same as teachers. It is evident from results of the data that student-teachers believed that most frequently used teaching method during their ITE is didactic approach where the teacher lectures and students take notes. On the other hand the majority of them do not consider it important for the teaching of ESD. The least frequently adopted teaching technique by both groups of teachers is *Use of the internet to gather information and engage with other students in the world*, although, the majority of them considered it important.

Indeed, ESD is expected to flourish when teachers use innovative pedagogical practices although, they were not aware of practising all these activities in the context of ESD. As indicated in chapter 6 (section 6.9.2), the majority of the participants student teachers

believed that their teacher preparation programme is effective in equipping them with various teaching skills, which typically encourage teachers to shift their teaching away from traditional pedagogical approaches to the design of learning opportunities in which students are stimulated to ask questions, work on shared and individual projects. They were less in favour of learning the skills of think critically and make decisions through their course of studies.

The interviews with head teachers confirmed the claims of each side with some explanations. As the head teachers belonged to two different academic back grounds (private schools and public schools) their responses were different at some points. Otherwise their overall views are same. All of them agreed that the ESD can be more interesting by adding interactive strategies in the class rooms. Moreover, they expressed the view that learning of all these concepts effectively requires changes in the role of the students and the teachers. The majority of head teachers interviewed claimed that most of the teachers in schools widely use the technique of text book reading and memorization and measuring students' ability to recall information. Head teachers from elite private schools claimed that most of the teaching and learning in their classrooms are taking place through interactive teaching activities. Despite of all this it is appeared from the study that main purpose of all these teaching activities is the memorization of all the information given in the text books as the teachers are under stress of annual examinations results.

It is evident through the review of literature that successful implementation of ESD requires change in pedagogy. Gupta (2007) suggested for the implementation of ESD by stating that it requires a new pedagogy, not just new content Teachers' decisions about teaching-learning strategies determine the real curriculum (Sharma, 2005). Huckle (2012, p 36) argues that interaction with nature is central to our self-identity and, if teachers view sustainability as a 'frame of mind', this could have wide-ranging educational benefits and allow the whole curriculum to be seen as a medium for embedding environmental education. This approach refers to complex adaptive system which supports the interdisciplinary teaching while, focusing on a certain phenomenon such as ESD. Therefore, it is needed to revise the curriculum and assessment system so that teachers can enhance cooperative and collaborating learning and adopt teaching approaches which are student centred. It is not easy to adopt all these suggested or preferred teaching methods especially, in a centralised system of education where the curriculum is divided into disciplines and influenced by strict system of assessment unless the whole system is not

supporting it. The next theme derived from the study will discuss that how important is the role of all the stake holders to support the implementation of ESD and to what extent it can be seen in educational institution in Pakistan.

#### **8.4.3 Support from government, NGOs and head teachers for promoting ESD in schools and in ITE**

Without support from government in the form of finances, training, motivation and monitoring no public institution can be efficient. In the same way no one can deny the significance of the role of head teachers in organising all sort of teaching and learning activities by providing monitoring and support to the teachers. It is very hard to incorporate various initiatives without support from head teachers. To explore this issue the perceptions of teachers were explored through questionnaire and head teachers expressed their views through interviews.

Support from policy developers' level to head teachers' level is very crucial for classroom practices. In Pakistan the public school system is not autonomous and there is always a top-down approach and hierarchy of administration for implementing any policy (as stated in chapter 3). Teachers alone cannot employ any innovation in classrooms unless they are not directed or communicated to do so. Most of the reforms and developments in educational policies are conveyed to schools and teachers through the curriculum and the curriculum is translated through text books. Several official documents (Education policy of Pakistan 2010, Sustainable Development Stock taking Report of Pakistan by UN Millennium Development year Goals) reveal that the awareness and even efforts for sustainable development is present in the documents up to ministerial level but up to text books level this phenomenon is less prioritised. The curriculum review undertaken as part of this study indicated that curriculum developers of the new curriculum for primary grades and newly introduced B.Ed. Honours programme of ITE, intended to include contents and issues related to ESD. The importance of sustainable development as a cross curricular theme (where knowledge, beliefs and attitudes are integral components of learning) can be observed there too, without mentioning the term ESD in the curriculum. It seems that ESD is not mentioned systematically in formal primary education.

The support of the head teachers is key factor for adoption of a whole-school approach. In contexts like Pakistan, where the majority of the head teachers are unaware of the ESD, a whole-school approach is rarely adopted. It is worth mentioning that this approach has

been implemented sporadically in few private schools supervised by NGOs. A common strategy to establish a whole-school approach is the establishment of Green schools in many UN member countries, for example in Kenya and in Indonesia (UNESCO 2011a pp. 79-83). In the same way a small number of Green schools are also established in Pakistan but in private sector.

The views of teachers from both academic backgrounds (private schools and public schools) were explored through questionnaire about the support and facilities provided by institutions and Government for making their teaching activities more effective and interesting. These support and facilities were in the form of availability of:

- Refresher courses or in-service training for teachers
- Audio visual aids
- Internet and library facilities

All the participants from public schools claimed that they got a chance for attending teachers' training workshops. They also felt that these workshops are not organised on a regular basis and are very few and far between especially for the teachers belonging to rural areas. Head teachers and teachers from private schools were in a view of getting fewer opportunities for teachers training programmes than of public schools.

As a result majority of participants responded positively about the availability of training courses for them although, they were not satisfied with them. Informally, while discussing with them they described that although these workshops are very useful in learning interactive teaching methods, in reality they reported that in the classrooms they feel the stress of examination and pressure to cover the whole lengthy curriculum within limited period. This is also reveal through the present study, the majority of the teachers from private schools do not get any opportunity for in-service training and initial teaching education. In case of private schools, a few elite schools and chains of schools organised by a parent body provide training and guidelines to the teachers on regular basis but a majority of low cost private schools are run by the school owner who tend to hire untrained teachers on low wages without providing them any kind of in-service teaching training. This situation is also evident in a survey conducted by DFID in schools of Punjab. According to them in subject-specific methodology training public school teachers received more training than that of private schools (Coleman, 2010).

Nearly all the participants from urban areas responded positively regarding the availability of library and internet facilities. However, informally most of the teachers from public schools were of the view that although, there is a library there are insufficient books and it remains locked for most of the time. In most of the schools, students have no access to these libraries. In the same way few schools have internet access but it is not used as a teaching and learning aid rather it is used for official use only.

This kind of situation is not common with student-teachers as they all claimed that they have an access to internet in their computer labs and have an access to libraries too. They also expressed that most of the extra-curricular activities take place inside the campus and outdoor activities or field work except teaching practice in schools, are very rare.

The same issue was also raised with head teachers during their interviews. They all agreed that they tend to provide a range of support and try to facilitate the teachers within their capacities. According to head teachers along with monitoring and organising teaching and learning activities they try to solve the problems of teachers. They always welcome the suggestions given by the teachers and try to convey the demands and problems of the teachers and school to the higher officials. They all were agreed that, although there are fewer opportunities for the students to do outdoor activities, they all try to observe all sorts of national and international days along with religious celebrations. Keeping in mind the objectives of ESD, a majority of head teachers pointed out the role of morning assembly in creating good values as a good citizen among the students, which they conducted daily.

They also delineated the significance and the celebrations of different cultural, religious, national and international events and days related to environmental awareness such as Earth Day and Cleanliness Day. Moreover, according to them, once in a year different competitions take place between the students of different schools on essay writing, debates, speeches and quizzes. These activities address several local and global issues related to ecological, economic and social problems. They believed it as the appropriate way to raise the awareness of students for different issues. It is also revealed that although such activities are considered to be helpful for students, these are limited and only a small number of students from each school get the chance for active participation.

The research from this study revealed that kind of support which is required from government in the case of public schools and from organisations or school owners in case

of private schools are not satisfactory for the practices of ESD. The basic facilities for students and teachers for exercising activities related to ESD are not sufficient such as in-service teacher training programmes, availability of access to internet and libraries. Head teachers do not prioritize ESD as a whole school approach due to their lack of understanding and due to absence of instructions and guidelines received from higher authorities related to ESD. Several NGOs and international organizations such as: WWF, IUCN and British Council are working with schools in Pakistan since many decades. Interestingly one of the participant head teacher from public school in a rural area described the collaboration of his school with British council. He mentioned lots of activities relating global warming, equity and anti-terrorism taking place in his school. Haigh (2006) supports it by stating that education for sustainable development implemented by NGOs is better than any provided in the formal schooling because of its ability to connect with actual experiences. It can be true but Pakistan is a vast country, although the NGOs are playing a role but not to such an extent to cater a large portion of population.

### **8.5 Challenges and barriers responsible for the ineffective practices for ESD in Pakistan**

The literature identified many of challenges to the implementation of ESD. In the same way this study revealed several challenges in a Pakistani context for exercising the idea of ESD. In literature these were variously articulated as: poor or absent policy in relation to teacher education (Bolscho and Hauenschild 2006), vague pedagogical and curriculum sustainability mandates (Huckle 2009), low commitment on the part of stakeholders and teachers in policy implementation (Gayford and Dillin 1995). Supporting the challenges found in literature, the study identified barriers for practising ESD, which can be grouped in three categories:

- Literacy rate
- Challenges faced by teachers
- Challenges related to implementation

#### **8.5.1 Literacy rate**

Sustainable development depends on a literate and skilled citizenry (Piggozi, 2007). Perhaps one of the greatest expenses of implementing ESD is the provision of appropriate basic education. Basic goals, which were established by UN, include educating more children and increasing the universal average minimum of schooling to six years. In

Pakistan 44% of children are still out of school (National Education Management Information system Pakistan, 2016).

According to UNESCO, the first priority to achieve ESD goals is to increase the literacy rate in the world. UNESCO (2014a, p.13) presents an impressive statement as an evidence of how education transforms lives: “Education reduces poverty, boosts job opportunities and fosters economic prosperity. It also increases people’s chances of leading a healthy life, deepens the foundations of democracy, and changes attitudes to protect the environment and empower women”.

Education is the fourth goal of the all the seventeen goals of SDGs (sustainable development goals). In Pakistan the majority of children and young people receive their education through the formal education system. The gross enrolment rate in primary education is 66% according to World Bank (2015) statistics Pakistan spends 2.7% on primary education out of its total expenditure on education sector. Pakistan is adopting a number of measures such as free education up to primary level for the achievement of universal primary education, in line with the Millennium Development Goals. UNESCO (2014) registered that number of out-of-school children of primary school age has fallen almost by half since 1999.

In Pakistan a majority of population (up to 70%) is residing in rural areas still do not seem to prefer education. The reasons for all these could be following:

- Lack of qualified teachers and their resistance to go and serve there.
- Absence of physical facilities and incentives in schools to attract teachers and students.
- Parents prefer their children helping them in fields.

Therefore, certain measures from government are required to raise the literacy rate, as the first step to raise the conscious of the people for sustainable development ideas.

### **8.5.2 Challenges faced by teachers**

Teachers are the main practitioners of any developments or reforms in any educational system. For this reason they are the focal point of this study. A review of several articles described teaching as a weak point in sustainability education policy (Bolscho and Hauenschild 2006; Nam 1995; Posch 1999; Puk and Behm 2003). Responding this,



teachers, student-teachers and head teachers involved in the study presented a number of challenges and barriers for practicing ESD in their institutions.

**(i) Lack of awareness for ESD:** The data showed the unfamiliarity of teachers with the term ESD. It is very important for teachers to be aware of the importance of sustainable development education in order to develop the values of ESD among the students. According to this view, unless teachers become acquainted with the need for ESD they might not be able to develop something they do not know about (see chapter six and seven).

**(ii) Insufficient in-service teachers training workshops:** As the research data showed, the majority of the teachers from both groups recognized the importance of in-service training for teaching but on the other hand they were not satisfied with the occurrence of these workshops. According to them these workshops are few and far between and rarely focused on the strategies for ESD. Unfortunately the few scholars who examined EE in Pakistani schools point to the inability of the teacher body to implement the demands of this new type of education (Memon, 2007). Insufficient teacher training, both in-service and pre-service level is seen to be a main factor among many other as according to Mirza (2010) compounding the problem, teacher training programmes in Pakistan should be regulated and up to date.

These kinds of results are also evident from data collected through UNESCO's GME questionnaires which suggested that for ESD, teacher professional development opportunities are being provided only on an ad hoc basis, with no evidence of whole-scale change. However, there are some exceptions as Albania reports that 2,500 primary school teachers and 1,000 primary school principals have been trained in environmental education in Albania and the Republic of Korea reports that 7,000 teachers took part in ESD teacher training (GME Q, Republic of Korea, UNESCO, 2014).

**(iii) Lack of time and resources:** During the study, time and resource constraints were frequently identified by school teachers and head teachers as common barriers to ESD implementation. Teachers from both academic back grounds (private school teachers, public school teachers) agreed on the insufficient time for students to cover the syllabus. Several studies indicated that adopting a whole-school approach to teaching and learning ESD is viewed as simply impractical given current constraints on teachers' time within already overcrowded curricula (Henderson and Tilbury, 2004; Learning for a Sustainable Future, 2006; Jackson, 2007).

On the one hand the participants also agreed that their pre-service and in-service training programmes are helpful in making teaching effective and interesting to some extent. On the other hand they expressed their concerns for exercising suggested activities in classrooms as they need time and resources. A.V aids for teaching are limited to pictures and charts. Only a few public and private schools have internet access or well-equipped library. Moreover, majority of the public schools are without basic facilities like, inappropriate building of schools with few rooms, non-availability of clean drinking water, no proper arrangements to face the severe weather conditions in schools.

To explore the challenges faced by teachers related to ESD, UNESCO conducted a survey and it indicated that the challenges to implementing ESD in teacher education were varied. Nevertheless, three themes repeated: lack of financial resources, lack of awareness of ESD or support and lack of human resources. Insufficient resources—financial and human resources—is often a problem associated with initiating new educational initiatives (McKeown, 2014). These challenges are very much in line with the survey results of the present study except one theme which is related to stress of assessment.

**(iv) Stress of examinations and use of traditional teaching methods:** The results of the data showed that all the teachers in the study held the view that most appropriate methods to deliver ESD is the method in which '*students work on projects and involve gathering information outside of school* but further they expressed their preference for using the method of studying textbook in classrooms. It was due to fact that examination system in Pakistan is based on memorization of text written in the text books. In national education policy of Pakistan there is an emphasis on interactive teaching methods which are multi-sourced and multi accessed (Mirza, 2010). On the contrary the examination system does not support critical thinking and other interactive strategies for learning especially at school level. Another factor behind the using of traditional teaching method is the lack of ability of the teachers to diversify the methods and activities of teachings and link the learning experience with surrounding environments. However, studies on this issue show that covering too much material too quickly can have an adverse effect on cumulative student learning. As a result, students do not master the basics despite several years of instructions (Pritchett & Beatty, 2012).

Many authors described tensions between sustainability education and the perceived primary purpose of education: preparing students for examinations in core subjects (e.g. Gayford and Dillin, 1995; Gruenewald and Manteaw, 2007; Martina et al. 2009; Nixon et

al. 1999; Scott and Reid, 1998). Huckle (2008) noted that when educational mandates focus on testing and performance this not only de-prioritizes sustainability education, but also, through a reliance on individual attainment and competition, discourages an ethic of environmental and social care in society. Arif (2010) agrees with this reality by stating that the concepts and teaching strategies relating to ESD continue to be difficult to incorporate into the rigid examination driven culture of schools in Pakistan. Furthermore, the traditional examination system of any country limits the critical thinking, which is necessary for ESD (Sarabhai, 2004).

### **8.5.3 Gaps in implementation process**

The efforts for promotion of ESD always envisioned as a top-down approach such as the role of large international institutions as well as national education policy makers in determining the aims of ESD and these may be different from those goals formulated by practitioners and/ or theorists of ESD (Kopnina, 2011). Tilbury et.al, (2002) argues about the gaps in implementation of ESD that unlike most education movements, the concept of ESD was not introduced by the education community. Mainly the idea of ESD came from international, political and economic forums (e.g., United Nations, OECD, OAS). In many countries the concept and content of ESD are developed by ministries such as environment and health, and then given to educators to deliver. This conceptual development outside educational sector is seen as a problem both by international education bodies such as UNESCO and by educators themselves.

The literature study and field survey identified several implementation gaps from international level to classroom level. Successful implementation of ESD needs to identify and then cover the gaps present at all levels. At policy level many developed countries have shown progress, while many countries are developing national strategies for ESD with financial mechanisms to encourage implementation of ESD both in and out of formal schooling.

In Pakistan huge gaps exist between the goals for implementing Education for Sustainable Development at policy level and what is actually happening in classrooms. There is a lack of coordination amongst responsible agencies as well as personnel like in most of the Asian countries. Documents study reveals that the Ministry of Education and the Ministry of Environment adopt individual policies and procedures to pursue their own mandate without any collective actions and visions. As a result there is no consultation among them and an agreement could not be found as a step to meet the goals for ESD. Several official

documents (Education policy of Pakistan 2010, Sustainable Development Stock taking report of Pakistan by UN Millennium Development Goals) reveal that the awareness and even efforts for sustainable development is present in the documents up to Ministerial level only. The actual situation of understanding and practices in the educational institutions in Pakistan indicate a gap that can be referred to the ‘Stevenson gap’ which emphasizes the gap exists between curriculum intentions or governmental policies and the realities of the classrooms (Hacking, Scott, and Barrat, 2007).

These challenges and barriers are also in line with an international survey regarding ‘Barriers and deficits with implementing ESD’, where experts from Pakistan expressed the barriers in implementation of ESD as:

- Teachers lack the sense of responsibility of imparting ESD
- Lack of government support.
- Lack of sense of responsibility on the part of the stake holders (Gross, 2009).

Several researchers from different countries addressed the challenges for ESD in socio cultural settings for example in Germany, the main problem is thought to be the lack of integration of local environmental and global social aspects of sustainable development and lack of integration of economic, ecological and cultural aspects of sustainable development within ESD. Another main obstacle to ESD is considered to be existed in the structures of discipline-oriented teacher education in Germany, which is not considered to be an easy problem to address (Dietmar, 2006).

Another major problem of schooling throughout the region is its overly academic nature and lack of relevance to the everyday rural and community life of the villages where most people live. The national curriculum as it is designed in Islamabad (capital of Pakistan) fails to address local issues while incorporating Education for sustainable development and environment education. Tilbury (2002) claims that children living in remote and rural areas especially, at primary level, find it hard to relate the issues such as traffic and industrial waste to environment.

## **8.6 Conclusion**

This chapter presented the discussion on main issues by combining all theoretical and empirical evidences of the study together. The chapter presented the rationale behind the unsatisfactory implementation of ESD and identifies number of challenges for the current actors and partners. The review of literature shows that With the varying degree of cultural, social and political background, ESD has taken different level of progress in different time

and space zones, which has emerged as a subject of interests for individuals and research projects. A majority of researchers believe that in terms of content it can be defined as to identify and establish the linkages between the principles of Sustainable Development Education and the long-term economic well-being of every nation and in term of pedagogy ESD themes can be addressed through a multidisciplinary approach with a focus on a change in delivery of the content (STables and Scott, 2002, McKeown and Hopkins, 2003 and Jenkins and Jenkins, 2005).

Therefore, in countries like Pakistan where the centralised national curriculum determine the content and sequence of study in each discipline, implementation of ESD can be challenging and needs the involvement of all the stake holders to reorient the education. The present study reveals that while relevant environmental and developmental issues are included in primary education, the amount of attention it receives and how it is presented is largely unsatisfactory to meet the objectives of ESD determined by UN.

Moreover, the participants of the study highlighted the contextual issues related to teacher training, the provision of resources and large class size as the main challenges for adopting concepts and approaches for ESD. The main challenge, which is also a root cause of other challenges, is lack of seriousness in the part of policy makers to implement this broad agenda in schools. The non-Governmental and civil society sectors have made some advances but on limited basis.

## **CHAPTER NINE**

### **A Framework of recommendations for ESD**

#### **9.1 Introduction**

The present study aims to identify the level of awareness and practices for ESD and further design a framework for its better implementation in primary schools and in ITE in Pakistan. This study presents the evidences that despite all the considerable progress which has been made during the Decade for Sustainable Development Education in many countries of the world, Pakistan is lagging behind. The present study identified several challenges and gaps in achieving the goals for ESD derived through literature, observations and the responses of

the participants. In the light of all these facts and suggestions sought through the participants during the interviews, through questionnaire and by observing good practices of ESD in other parts of the world, few recommendations for reforms can be given.

The participants of the study, being practitioners in the field of teaching are in a strong position to evaluate the weaknesses and strengths in the educational system in order to suggest recommendation. Accordingly the last section of the questionnaire and the interview was intended to seek suggestions from teachers and head teachers for the implementation of the agenda of ESD. All these suggestions and recommendations are grouped and linked to the ideas explored in the previous chapters. All the themes and ideas generated through curriculum analysis, questionnaires and interviews converged through these suggestions for improvements which further enhanced the validity and act as a standpoint or summary of the study.

## **9.2 Areas to be reformed for implementation of ESD in Educational system in Pakistan**

The present study indicates that in order to provide students with adequate awareness for ESD, the current educational programmes for primary schools and ITE need to be reformed. Sustainable Development Education has a broad agenda and it requires reforms in educational policy, teaching content and in pedagogy. The schools and the teachers' education institutions being practice bases for sustainable development education, require reforms in this area.

During the study several areas for reforms have been identified in the educational system of Pakistan includes: provision of basic education, role of higher education and research in ESD, reforms in curriculum, inclusion of term ESD in educational system, set out a frame work for reforms in teacher education both in pre-service and in-service teacher education, reforms in assessment system and establishment of coordination among stake holders. These can be discussed in detail for better understanding.

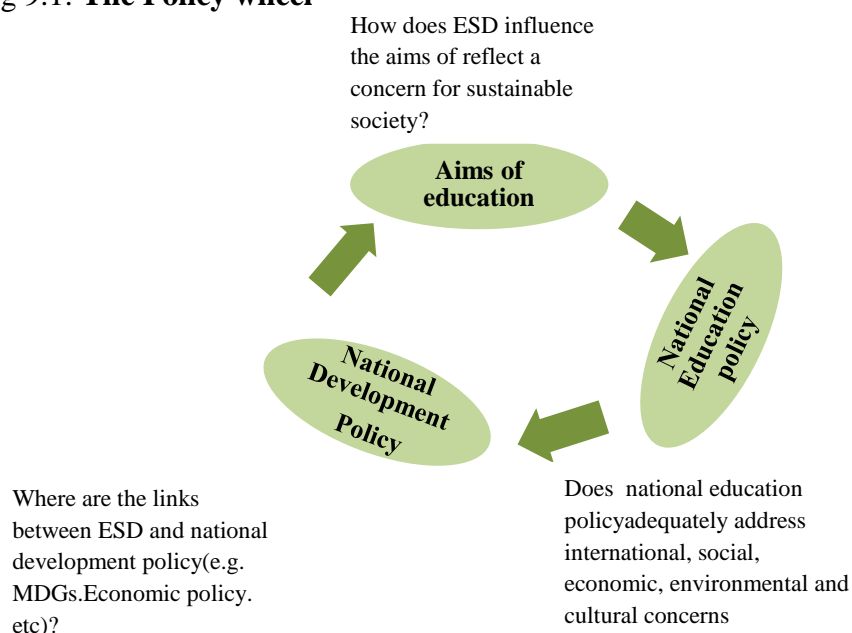
### **9.2.1 National policy and ESD**

To succeed, ESD must have an authoritative momentum from national or regional governments that will drive policy development. The non-existence of such an impetus would prove to be downfall to infuse environmental education into the elementary and secondary curriculums (UNESCO, 2004). The reality of any educational reform is that

success depends on both "top down" and "bottom up" efforts. Administrators and the ministries at the top are in a position to create the policies that will make reform occur. Together, administrators, teachers, and community leaders at the local level must interpret what the policy should "look like" locally (UNESCO, 2004).

According to UNESCO (2010) in order to integrate ESD fully into society, there may be a need to integrate ESD principles into national development policies, or to change the current aims of education to include ESD principles, or it may be necessary to change the aspects of national educational policy or it may be necessary to do all three to ensure that ESD is appropriately integrated into the national policy. The policy wheel diagram below (Fig 9.1) shows the interlinked nature of policy environment.

**Fig 9.1: The Policy wheel**



Source: UNESCO, 2004

UNESCO Review Tool (2004) stresses to identify that how national policies are/ are not promoting different interlinked dimensions of sustainable development and how to identify the role of education in these policies. Referring to this UNESCO considered the issues from national development policies that can be included to identify the sustainable development such as: economic development, poverty reduction strategy, health, culture, population, environment, community development, education, employment and training. Action plan can be developed after identification of policy resources relevant for integrating ESD.

### **9.2.2 Reforms in implementation from policy to practice**

According to Agenda 21 primarily all the countries at their national level are responsible for the implementation of ESD policies. In this regard all the member countries at UNCED, agreed that financing for implementation agenda21 would come from their own resources. It was also agreed that support from development partners is crucial for the full implementation. McKeown (2002) in toolkit for ESD added to explain it more that, to support global implementation of ESD,

“We need international cooperative programs for administrators, curriculum developers, teacher educators, and lead teachers. These programs should maximize and leverage the knowledge base and strengths already existing in the labour pool” (p 12).

It means that the practitioners of Education for Sustainable Development could benefit from stronger network. These networks would contribute to the exchange of ideas and greater penetration of theoretical work elaborated at the global level. Ultimately, the domain of policy has much to learn from the lived experiences of successful Education for Sustainable Development programs. According to UNESCO (2005), the possibility of common vision of ESD between the public and the governments of South Asia is achievable, but it requires greater mobilization, greater participation of local communities and greater incorporation of ESD into existing policies and programs.

One important approach to effective implementation of any policy is its consistency. This must be grounded consistently in the changing political situations in Pakistan. Respondents identified communication and coordination gap between policy makers and school teachers. Head teachers from public schools with a centralised system were in a view of having a monitoring system to ensure the practices of interactive activities of teaching. Moreover they also mentioned the lack of independence in order to make decisions to address their immediate situations.

A sustained development can be achieved by addressing the environmental concerns more forcefully. In Pakistan, environmental education is not a priority for the policymakers. Policy responses are not generally influenced by methods and tools for cost-effective and sustainable interventions. There are no long-term, inclusive and coherent institutional arrangements to address issues with a long term vision (Khan, 2012). There is a focus on tree plantation campaign, and every year thousands of saplings are being planted in different parts of the country. This is a significant measure to combat climate change



factors but these efforts fail to produce the desired results due to lack of proper awareness on the part of the masses in the country.

Therefore, there must be;

- a) a coordinated mechanism between international agencies like UNEP and UNESCO and the Ministry of environment, curriculum wing and higher education commission and may ensure that the global concerns and policies of the government are trickling down effectively or not?
- b) networking of all other related Ministries and departments like agriculture, health, population welfare, industries, water and power, natural resources, etc., which are responsible for creating environmental concerns alongside Ministries of Education and Environment, which are addressing environmental concerns towards human resource development and a sustainable society; and establishing an effective linkage between Ministry of Education (Curriculum Wing and HEC) and the Environmental Education Departments/Institutions functioning in the region or other countries of the world to have benefit from interaction and experiences of each other.
- c) Media in Pakistan can enhance any effort for the cause of environment in society. It is the responsibility of the governmental authorities to initiate concrete efforts in highlighting the importance of ESD in the country through using all forms of media.

The Ministry of education should take serious steps to make ESD a mandatory part of primary and secondary education at national and provincial levels. They should also revise the teacher education and certification requirements to include ESD and to align these revisions to correspond the ESD components at primary and secondary education. The Ministries of education should create professional development programs related to ESD for in-service teachers. A strong national coordination team for ESD should be developed that includes professional organizations and issue-related educational organizations (e.g., consumer education, environmental education, and equity education) to integrate their work with institutional ESD initiatives through cooperation, collaboration, and sharing. Although, many International Organizations are providing support and funds to initiate ESD programmes but these are at a very limited level and lacking in monitoring. Therefore, the ministries of environment, commerce, state and health should collaborate with the ministry of education by combining expertise; resources and funding as these are also have a stake in ESD (Haque, 2013). The efforts and initiatives taken by the policy makers and

the relevant ministries would be fruitful unless there is an involvement of all the stakeholders in it.

### **9.2.3 Establishment of coordination among stakeholders**

The reality of any educational reform is that success depends on both “bottom up” and “top down” approaches. Since sustainable development is hard to define and to implement as well. In a centralised education system top-down reforms are essential for catering all the educational institutions. The administrators at the ministerial level are in the position to formulate and implement policies that will make reform occur. Teachers and community leaders at local level must participate and interpret what policy should look like locally.

In Pakistan as mentioned earlier, a centralised educational system prevails with a hierarchy of administration. The Ministry of Education is responsible for carrying out any reform or change in educational system. Teacher education institutes should collaborate with other stakeholders such as the Ministry of Environmental Affairs on joint research and projects on ESD. The Ministry of Environmental Affairs is probably the ministry with most responsibility for safeguarding the earth from pollution, global warming, etc. This ministry has announced many environmental awareness projects involving the ministry of education but unfortunately, due to lack of interest these projects are rarely implemented in the desired areas for exercising them (Nagra, 2010). Therefore, according to hierarchy of authority there must be a system of coordination and monitoring from ministerial level to school level by involving all other stakeholders.

The NGOs and other international organizations such as WWF, IUCN and British Council/DFID are working actively in Pakistan for the provision of basic education and inclusion of environmental education and global education in Pakistan both in private and public sectors. The government of Pakistan should collaborate with these organizations for expanding the circle of activities to the majority of schools and should try to seek consultation while formulating reforms in educational system.

## **9.3 Provision of basic education to all the population**

Provision of basic education is the initial step is to develop awareness within educational community and reorientation of educational system. Education promotes comprehensive human development which is in essence a matter of sustainable human development. According to Kates, (2005) perhaps one of the greatest expenses of implementing ESD will come with providing appropriate basic education. Hence, if communities and nations hope

to achieve sustainability goals, basic education must be reoriented to integrate ESD at all the stages of education pre-primary, primary, secondary, higher secondary and advanced—and within all forms of the existing educational set-up, i.e. formal and otherwise.

Meeting the literacy goals will require building more schools and hiring many more teachers and these new teachers must be trained, and current teachers must be retrained to reorient their curriculums and classroom practice to address sustainability. Moreover, an increase in the share of education in budget is needed on the part of government for providing maximum opportunities of education for all the children. According to UNESCO (2016) Global Education Monitoring Report, one of the key to accelerate the education rate is financing. This report revealed that Development aid for education from rich countries to developing countries is lower than it was in 2009 – just US\$ 5 per person per year. This investment is tragically small to raise the level of education in the world. Therefore, the leaders and citizens in the high income world should prioritize the investment in education for the world's future sustainable development and peace.

An extra effort is needed towards the educational administrators to make sure that the teachers stay where they were posted. Teachers working in rural areas should be awarded with incentives. The government of Pakistan is also taking initiatives towards raising the literacy rate by providing free education and text books at primary level but still a lot needs to be done.

#### **9.4 Role of Research and Higher Education Commission for ESD**

Education and research are essential tools for achieving sustainable development. Universities can play an important role as places of research and learning for sustainable development. Institutions of higher education should conduct seminars and conferences on the different aspects of sustainable development for enhancing the knowledge of prospective teachers. It is evident through the study that two of the participants claimed that they were aware of the term ESD during their higher education. Therefore, the role of higher education is also very crucial to support ESD. Higher education institutions should also provide leadership by introducing elements of sustainable development in different faculties by putting more emphasis on experiential, enquiry-based, problem-solving, interdisciplinary systems approaches and critical thinking. Curricula need to be developed, including content, materials and tools such as case studies and identification of best practices (UNESCO 2005, pp.22-23).

Higher educational strategies for advancing sustainability need to be developed by individual systems and institutions so that they remain locally relevant and culturally appropriate. The criteria for deciding research issues also need to be locally and culturally relevant. The sample guidance for developing such criteria are provided in the principles of documents such as the Earth Charter which call on us to act (and conduct our research) in ways that: respect Earth and life in all its diversity; care for the community of life with understanding, compassion and love; build democratic societies that are just, sustainable, participatory and peaceful; and secure Earth's bounty and beauty for present and future generations (Kates, 2005). Such principles can encourage research that begins to answer Orr's (1992, p. 163) rhetorical question: "what good is a rigorous research agenda if you don't have a decent planet to put it on?"

### **9.5 Inclusion of the term ESD in educational system**

ESD is not to be positioned as a school subject like English, Mathematics, Science, etc. As students learn school subjects, they will not realize that they are being exposed to ESD. That is to say, ESD is learned without knowing its significance, where ESD is taught across the curriculum without mentioning the term ESD as indicated by the present study. To introduce the term ESD with its significance, the following are practical suggestions to be implemented:

- i. Reorientation of all school teachers, regardless of their subjects, they should promote ESD in their teaching.
- ii. ESD be promoted and introduced through seminars and workshops designed for different groups of teachers.

Elementary and secondary teachers are the most potential human resources for leading towards ESD agenda. Unfortunately, they are not capable of doing this as their pre-service training did not provide them with the minimum skills required. The most feasible way of updating their knowledge and practice of ESD is through in-service programs or seminars specifically designed for ESD. Care should be taken in designing the syllabus or materials of training to make sure that they are suitable for teachers. ESD materials should be made available for use, such as brochures, film, video, power points, etc.

ESD should be included in the in-service training curriculum for teachers as part of professional development. This study indicated that ESD is not incorporated in the existing curriculum of most ITE throughout Pakistan. Incorporation is not simply inserting the

technical words of ESD in the syllabus, but in implementing ESD in the classroom and outside. Teachers are thought to be the ESD advocates and propagators while students are practitioners of ESD. This suggests that teaching ESD is not solely the teaching of theories or concepts of ESD, but in implementing ESD in day-to-day activities inside the class and outside. Moreover, a reform in curriculum is very important for the inclusion of ESD in formal education system.

### **9.6 Reforms in Curriculum for ESD**

According to UNESCO (2006) every country must decide on a method of implementation for ESD according to its circumstances. In case of curriculum formulation, every country should decide to add content in the existing curriculum or to create another “add on” subject, (e.g Sustainable Development, Environmental education, or Population Education) or to reorient entire education programme or practices of teaching and learning to address sustainable development. It is evident from the review of literature that any education, including education for sustainable development has to be grounded in simple and uniform structures. Within this setting, a region-specific curriculum of ESD has to be formulated. In a curriculum, education and research have to be focused on local context, as an example, being an agricultural country priority has to be on protecting soil erosion and the soil resources and the water needs of rain-fed and mechanical irrigation in the cropping areas. The ‘*tool kit for ESD*’ indicates, for the formulation of curriculum that the curriculum should be sum of all the formal and informal learning activities (McKeown et al., 2002).

It is evident through the literature and result of the study that sustainable development cannot be just an addition as a new subject; rather it is a dimension to be emphasized in every aspect of school life such as:

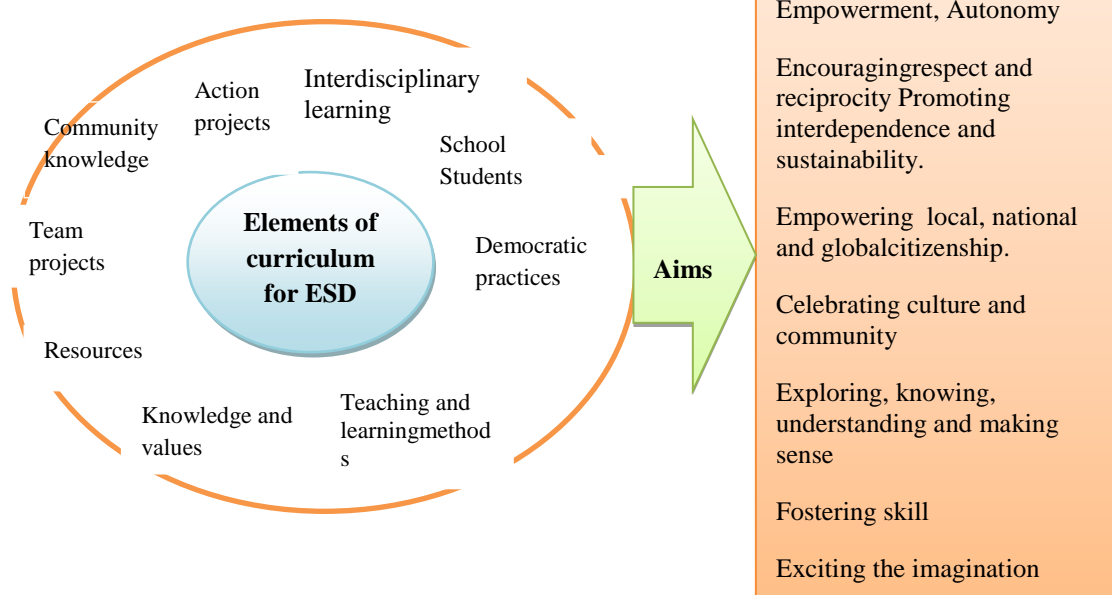
- ESD should be taught through various subjects in a way the learning objectives of the subject are achieved whilst keeping it related to sustainability and keeping students talking about the ways of living as responsible citizens in the local and global community.
- A constant flow of authentic information about the impact of global and environmental events is needed to make a sustainability curriculum relevant and up to date. These can include the events relating to climate change, the state of global ecosystems and increase in population.

- The curriculum should be a selection of knowledge and values by considering student learning needs, local community interests and ways of learning to live sustainably.
- Projects including: caring for gardens, visiting and helping senior citizens in the school area or in the community, monitoring local air or water quality, and so on will provide valuable learning experiences to students at all levels. Several small team projects can be integrated into formal curriculum. These projects can even enter into competitions within school and with other schools. These kinds of competition can provide students with more opportunities for learning and share their ideas, and to learn from others about what they are doing.
- Schools can undertake the efficient use of resources to save money by reducing the wastage of water and electricity. Ideas of re-using and recycling of resources can also save school money. Use of resource materials to supplement to text books should not be limited to print materials. The surroundings of any school and resource available at local level should be utilized as teaching and learning aid as maximum as possible. Kenya presents a n example of such practices (Owuer, 2008).
- ESD should be included in the curriculum of general subjects of ITE such as; teaching methodologies, teaching of social studies, teaching of science and environmental education, etc. In the absence of redefining and revitalizing the content and mode of delivery, the ESD will remain “the neglected step child.” Thus, the ITE subjects need invigorating by incorporating new content including ESD issues (Haque, 2013).

As far as higher education is concerned internationalism should be the part of curriculum especially, about the flow of ideas, practice and research from countries around the world. A greater degree of internationalism would help to know how different countries tackle issues relating to globalization, environment change and resource exploitation. O’Riordan (2004) argues that much of the school curriculum and higher education curriculum is leading towards a philosophy of economy and society that is not sustainable and emphasizes fuel consumerism and the never-ending depletion of the Earth’s reserves. Therefore, there is need for power-sharing within a frame work of participatory democracy, which involves government and other centres of decision-making, for example, industry, commerce and key sectors of civil society. Nevertheless there is a need to introduce new forms of renewable energy resources and in due course replace, those we are already using

at present. The solution is here can be the education, in combination with science and technology, the private sector and government support, could play a crucial role through well-planned research and development programmes. In Pakistan curriculum should be designed to the extent that we can make agriculture efficient, the pressure on natural environment less, more availability of generation of hydroelectricity power as energy resources.

**Fig.9.2 Elements and aims of the curriculum for ESD**



Source: UNESCO (2007)

ESD continues to be conceptualised by many practitioners as an 'add-on', rather than a holistic change in teaching and learning practices. To obtain support from school administrators, governments and teachers alike, it is necessary to highlight the importance of curricula integration, rather than the creation of new courses.

It is also important to work with national publishers and textbook committees to infuse sustainability into text books at all levels. The majority of the participants were in favour of introducing ESD themes through different subjects. Few of them were also in the favour of introducing ESD as a separate subject due to its importance and vastness.

An integration of competencies and knowledge-based curriculum must be developed. On the one hand it would provide the means to achieve holistic understanding of complex knowledge, and on the other it facilitates the acquisition of capabilities required to learn and handle complexities (Anderberg et al., 2008). Three comprehensive educational

objectives for ESD are identified in the OECD study that should guide every curriculum developer such as: human rights, democratic structures and orientation towards criteria for sustainable development(i.e., integrating environmental protection, economic well-being, and social equity). These objectives provide a normative basis for the framework for the life of the individual and society (OECD, 2002, p 26).

A reformed and revised curriculum is vital for ESD but it would be ineffective if teachers are not ready to cope with it. Therefore reforms in curriculum should be accompanied with reforms for teachers. Initial teacher education can be the first step for raising the enthusiasm and motivation towards ESD. This study indicated reforms agenda for ITE along with exploring its structure system and challenges.

### **9.7 Set out a frame work for reforms in Teacher Education**

Teachers play a vital role in every education system. They are the key practitioners who transmit knowledge and promote true learning in global education (Smith, 2000). For most educationists educational reforms are associated with professional development of teachers (Borko. et al, 2002, Cochran2001, Fullan, 2002).

The interviews and questionnaire data raised a common issue of in-service and pre-service teaching education. New trends in teaching and the global knowledge of teachers depended on type of training acquired by the teachers. The literature suggests that the quality of teachers depends on the educational qualifications of teachers and the quality of pre-service and in-service teacher education (Aga Khan Foundation, 1998; Angara & Abuja, 1992; Sharma, 1993). Unless teachers are trained and capable enough to meet the challenges, we cannot expect required outcomes.

The idea of developing the global mindedness of students is often linked to the knowledge, attitudes and skill development of teachers. These factors play a vital role in developing student's capabilities to face the world's challenges with confidence. Paliakoff & Schwartzbeck (2001) observed that the quality of teaching has a direct impact on student learning. Therefore their professional development is crucial to maintaining the standards of education and it is essential for teachers to be well-equipped with modern skills, as well as up-to-date knowledge about world issues to impart globally and locally competent



knowledge to students. Kennelly et al (2008) found that the success of whole-school policies was deeply linked to the pedagogical practices and ideologies of coordinating teachers. They conclude that ‘the fundamental ideas and practical procedures underpinning [whole school programs] should be incorporated into wider pre-service and in-service teacher professional learning. UNESCO (2006) concurred with McKeown and indicated that Faculties of Education needed to instil skills and knowledge of ESD to teachers. This conviction was driven by realization that the faculties of education train and produce teachers responsible for developing policies in education realm and in curriculum, education administration, education materials development, timeTable writing and scheming or planning the lessons. Thus due to the role played by the teacher in designing education to be offered, the knowledge of ESD remain indispensable in developing education curriculum that would enhance ESD.

The present study suggests the current state of teacher education needs to be reformed in the context of ESD. In Pakistan both public and private sectors are offering teachers’ training programmes (details in chapter two). Although all the teachers serving in public sector are professionally trained according to their qualifications, the majority of them continue to practice traditional teaching methods in their class rooms. This was noted in the National Education Policy 1998-2010, “although we are successful in mass production of teachers, but their content and methodology of education is shallow” (Government of Pakistan2010).

The survey results from student teachers of B.Ed Honours indicated that the majority of them were in favour of exercising interactive student centred activities in the classrooms but they did not confirm the practices of all these strategies in their present course of studies. For this purpose educational institutions providing teacher training are required to plan and design such curriculum which can equip globally competent teachers with skills, attitudes and knowledge.

The example of Vietnam provides a model for how this can be accomplished. At the Hanoi National University of Education (HNUE), the Centre for Research and Promotion of ESD was established in 2006. The process of integrating ESD into teacher education curricula was achieved in two phases: Integrating ESD (Phase 1) and Doing ESD (Phase 2). The whole education programme was reviewed first, using a matrix to identify themes of ESD for insertion into coursework. This integration was then followed by the acts of doing ESD

in a diversity of ways for blended learning (Kwo, 2011). While these examples are inspiring, they have not yet become the norm in Pakistan. Therefore, the current ITE curriculum should be reoriented to prepare prospective ESD-conscious teachers. To do this, the following are practical suggestions to be implemented at ITE institutes.

- i. Research on ESD should be promoted through ITE to find alternative strategies of implementing ESD at different levels of schooling. Preschool, elementary, junior secondary and senior secondary school students who are of different ages should be taught differently. Introducing ESD to them should be designed accordingly.
- ii. All departments regardless of their area of study need to provide students with ESD. Considering that ESD is an area open for anyone.
- iii. All prospective teacher students should be encouraged to explore ways of integrating ESD in their respective field of study. The vision of ESD should be socialized to prospective teachers of any school subject. Primary school teachers, being the class teachers rather than subject teachers, have more opportunities to integrate ESD issues into almost all school subjects all day long. However, relevant teaching material should be made available for use.

A survey with International Network (IN) members were conducted by UNESCO chair (2005) addressing, what should be included in pre-service teacher preparation efforts post-2014. The Chair examined what respondents proposed and these results were aligning with the suggestions presented by the present study to some extent. Several themes repeated, including concern for finances, the need for a continuing strong international voice from UNESCO, the need for resources specifically for Teacher Education Institutes (TEIs) (not to be confused with materials for primary and secondary schools), the need for new materials that reflect emerging trends in ESD and the need for more research and dissemination of the resultant data as well as implementation of the existing Guidelines and Recommendations for Reorienting Teacher Education to Address Sustainability.

So there must be improvement in curriculum of ITE based on evaluation of the existing curriculum and the expert views of local and international educators. In this regard another factor which cannot be ignored is the programmes of professional development for faculty development in teacher training institutes for the teachers of prospective teachers. A large number of teachers serving in the schools require reforms in their in-service training courses as well.

### **9.7.1 Reforms for teachers and In-service Teacher Education**

Through the study another area for reforms emerged was, the reforms for teachers to overcome the hurdles facing by them. It is evident through the literature that a motivated, enthusiastic and well trained teacher performs better for ESD. In some settings, low perceived status of teachers and low financial compensation combined with time constraints, were found to prevent a focus on sustainability education (González-Gaudiano, 2007). Stimpson (1997) suggested that instead of clear policy mandates, environmental education relies on the ‘enthusiasm of teacher educators’ for its success. In the same way teachers’ enthusiasm must be developed in this field through offering incentives, resources, opportunities for participating in formulation of curriculum and training to overcome the hurdles and to take the agenda forward.

Effective teaching programmes as initial teacher education and during the service refresher courses always bring the positive impacts on learning and teaching in any discipline of education. Teachers are lifelong learners. They should undergo proper training to learn and acquire new skills and methodologies to teach effectively and efficiently in a world of changing technology and rich knowledge-base. A national teacher-training program should be developed and implemented to make teachers familiar with the changing demands of new technology, curricula, teaching methodologies and assessment techniques.

UNESCO (2006) postulated that education is the tool for transformation and the teacher is the instrument of achieving the desirable changes in relation to sustainable education, hence the great need to train teachers on ESD. Consequently, ESD can yield better results if it is taught by trained and experienced teachers. A cadre of EE/ESD teacher should be developed as master trainers who in turn can train the student teachers and in-service teachers. Experts and practitioners from various disciplines can act as a resource person so that students can learn from first-hand experience.

As this study indicates that majority of the teachers in Pakistan are not familiar with the idea about ESD therefore, in-service training courses are required to design to enhance the creativity and skills among the teachers to make them comfortable and skilled at teaching across disciplines by focusing on ESD. There must be guide books for teachers with emphasis on strategies suitable for ESD. Several researchers report an intense need from the part of the teachers “to receive a manual which will contain information about

environmental issues and guidelines for methodological approaches” (Kyridis and Mavrikaki, 2003; Spiropoulou, 2001).

For practice it is suggested that teachers both in government and private schools must re-examine traditional teaching strategies such as chalk-and-talk didactics method that mostly do not match the learning styles of students. Teachers need to use a variety of innovative teaching strategies such as cooperative learning strategies, while delivering their lessons. Besides that teacher should use problem solving teaching methods, so that critical thinking in students could be developed. Students should be encouraged to take positive actions in daily life so that they could be able to act positively in their practical life in future. In other words, action oriented pedagogy could be considered a first necessary step towards realizing and solving environmental problem. The heart of teaching lies in interaction and discussion with students. In the light of the results of this study, it is suggested that teachers must appreciate and encourage interactions and discussions in the classroom so that students can express and justify themselves.

The participant teachers of the study especially from public school suggested that although refresher courses are being provided to them but continuity and directions towards ESD should be there. The continuance of a teacher’s professional career is as important as the period of initial teacher education for providing motivation and direction to in-service teachers. The teachers’ development is no longer an option but a necessity in light of the urgency of including sustainability education as part of educational process. This means that any model of sustainability curriculum has to relate closely to the education and training of teachers (Thomas, 2004). All the teaching and learning activities revolving around the yielding of good results in exams therefore, certain reforms can also be recommended for the assessment system as well.

### **9.9 Reforms in Assessment**

Another important area for reforms that emerged from the literature review, interviews and observation is the strict and traditional examination system. The stress of acquiring good grades in the exams is hampering the teaching and learning activities.

Assessment refers to the process of monitoring student’s learning achievements for the purpose of diagnosing their learning strengths and difficulties. It is also important for providing a report to the parents, and providing a certificate of achievement for future use. These purposes give rise to the significance of the assessments however, in actually, the

assessment system has completely taken over the education system and it has overtaken all the teaching and learning activities. Participants in this study consider the examination system as a big hurdle in practising student centred teaching and learning in the classrooms which are vital for achieving ESD goals. The examination system emerged as a prominent theme while discussing with the head teachers. They discussed the problems of pressurised examination system faced by the institutions. In the end they also suggested some steps to lessen the burden of examination. According to a head teacher from public school:

‘Although evaluation and assessment is necessary for any educational system to move forward but it should not be so strict especially at the junior level.’ (Rb3).

They also believed that getting free from the pressure of good results in the examinations would develop the possibility of practicing other activities for critical thinking and problem solving to enhance the awareness of ESD. Two of the respondents expressed their views for examination system in a same way by suggesting that the objective of assessment should be focused on the learning of the students rather than test the memorization of text books. Stevenson (1987) supports the same idea by stating that the test of students’ thinking occurs in private artificial situations (i.e. written examinations) on theoretical material, which is usually far moved from the realm of the students’ present or future life experiences. According to the National assessment Report (2005) prepared by the NESA programme of the ministry of education Pakistan:

‘Neither the traditional school examinations nor the external public examinations administered for certification purposes, nor the selection tests for admissions to institutions of higher education, sufficiently fulfil the criteria for standardization and compatibility required for monitoring indicator.’

Therefore, reforms in the examination system demands especially in the background of ESD as follows:

- How students learn is more important than what they learn. As appeared in this study, due to examination system teacher-oriented approaches are adopted for covering a large amount of information. If the assessment system is revised then student-centred interactive approaches can help students feel responsible for their own learning, developing thinking skills, and fostering independent social and group processes.
- To emphasize higher cognitive skills such as problem solving and analytical skills rather than testing of knowledge and comprehension.

- In order to improve the construction of examination papers, training should be provided to o set the examination papers.
- There must be less examination pressure especially, at primary grades level.

Reforms in examination system should be prioritised by the policy makers as the traditional assessment system cannot truly assess the learning outcomes recommended in National Curriculum. Although such training is being provided to the teachers but these are not on a regular basis and do not involve all the teachers. Interestingly head teachers revealed during the interviews and many teachers expressed their views during the informal talks that the majority of the teachers are hesitant to accept new ideas and rules for construction of examination papers as these demand more analytical skills and critical thinking skills towards both teachers and students.

### **9.9 Mechanism for reforms in schools**

This study has shown schools need to be reformed in three areas:

- Reforms in physical infrastructure of schools.
- Provision of resources and support for teachers and students.
- Promote ESD through extra-curricular activities.

Provision of better environment with all the basic facilities for students surely make the teaching and learning more effective. Schools should be well equipped with proper classrooms, clean drinking water and continuous supply of electricity. How can students learn the wise use of resources if they are already lacking in basic facilitates. The participants of this study often expressed their concerns for the inadequate supply of resources from government in case of public school and from administration in case of private schools. No teaching can be fruitful and effective unless the school environment provides a suiTable climate for learning. For this reason the head teachers mentioned the scarcity of resources such as there should be proper classrooms and regular supply of electricity for every class room so the students can learn effectively in the severe weather conditions of Pakistan.

According to a head teacher although, the idea of ESD is very significant and urgent but the whole system should be ready to initiate such programmes. The students must have basic facilities for better learning at least. According to him:

‘From our stand point these kinds of ideas are best practised in Western countries. First of all the students should be provided with basic facilities of proper building of a school and having regular supply of electricity, clean drinking water and comfortable environment for learning.’ (R4a).

The government should raise the share of education in the annual budget for building more schools and providing basic facilities in existing schools. There must be library and internet access so that the teachers can make themselves aware of new teaching strategies and skills. According to a head teacher the Ministry of Education has launched an online programme of demonstrating practical approaches for teachers and students to teach and learn effectively. There should be a school teacher or principal mandated to monitor the process of ESD implementation, otherwise it will not take place at all.

However, the department of education can follow the examples from many developing countries with limited resources like in Malawi where the students learn from locally and easily available resources and creating most of their teaching material through recycling. ESD is a concept to be shared by all, including school principals, teachers, and students. When ESD is implemented through extra-curricular activities, the lesson is shared not only by students, but also by parents and the public in general.

#### **9.10 Summary and recommendations in the light of study**

In the light of this study few suggestions can be recommended to institutionalize education for sustainable development in broader spectrum:

- i. A coordinated mechanism between international agencies like UNEP and UNESCO and the Ministry of environment, curriculum wing and higher education commission and make sure that the global concerns and policies of the government are trickling down effectively or not?
- ii. Establishing an effective linkage between Ministry of Education (Curriculum Wing and HEC) and the Environmental Education Departments/Institutions functioning in the region or other countries of the world to have benefit from interaction and experiences of each other.
- iii. Basic facilities should be provided in the schools for better learning environment.
- iv. Practical and field observations should be an integral part of any ESD instruction programme.
- v. School administration should be cooperative and play a facilitator’s role in enabling ESD/EE teachers to take their students to demonstration sites and for study tours.

Different awareness raising programs should be arranged for promotion of sustainable development and its different aspects.

- vi. Educational institutions should conduct seminars and conferences on different aspects of sustainable development for enhancing the knowledge of prospective teachers and students.
- vii. Panel discussions, dialogs, and programs through electronic media is necessary to promote the vision sustainable development.
- viii. The *madrassa* schools were not part of the study but as a religious education institutes (see chapter 2) an opportunity should be provided to these *madrassas* to play their role as intermediaries in fostering awareness about sustainable development principles. There is a dire need to initiate linkages with religious institutions and the clergy in order to integrate environmental concerns into their programmes. This can be best achieve by giving them understanding the environmental messages are not in contradiction with popular Islamic teaching but in fact are reflections of these (IUCN 2003 p 18).
- ix. Introduce the STs to a separate course on ESD in B.Ed Honours programme or reorient the already existed subject of environmental education according to ESD.
- x. Development of interactive strategies for STs such as: problem solving, cooperative learning and critical thinking and their teaching practices in the schools should be assessed on the basis of using all these strategies.
- xi. Teachers should be guided through regular in-service education programmes and through guidebooks.
- xii. Assessment system should be revised so that teacher can find time to exercise interesting interactive strategies other than merely memorization of text.
- xiii. Creation of institutes and centres of education for sustainable development.
- xiv. Democratic practices are important in learning for sustainable development. It has to be practiced throughout whole school life by encouraging students to care for each other and also encouraging the teachers to take care of the students and formulate the rules for better school life.
- xv. Establishment of committees and focus groups on Education for Sustainable Development at the level of institutions.
- xvi. Establishment of partnerships with governments and local and regional NGOs.
- xvii. Launch Research on inclusion of education for sustainable development in teacher training at national level.

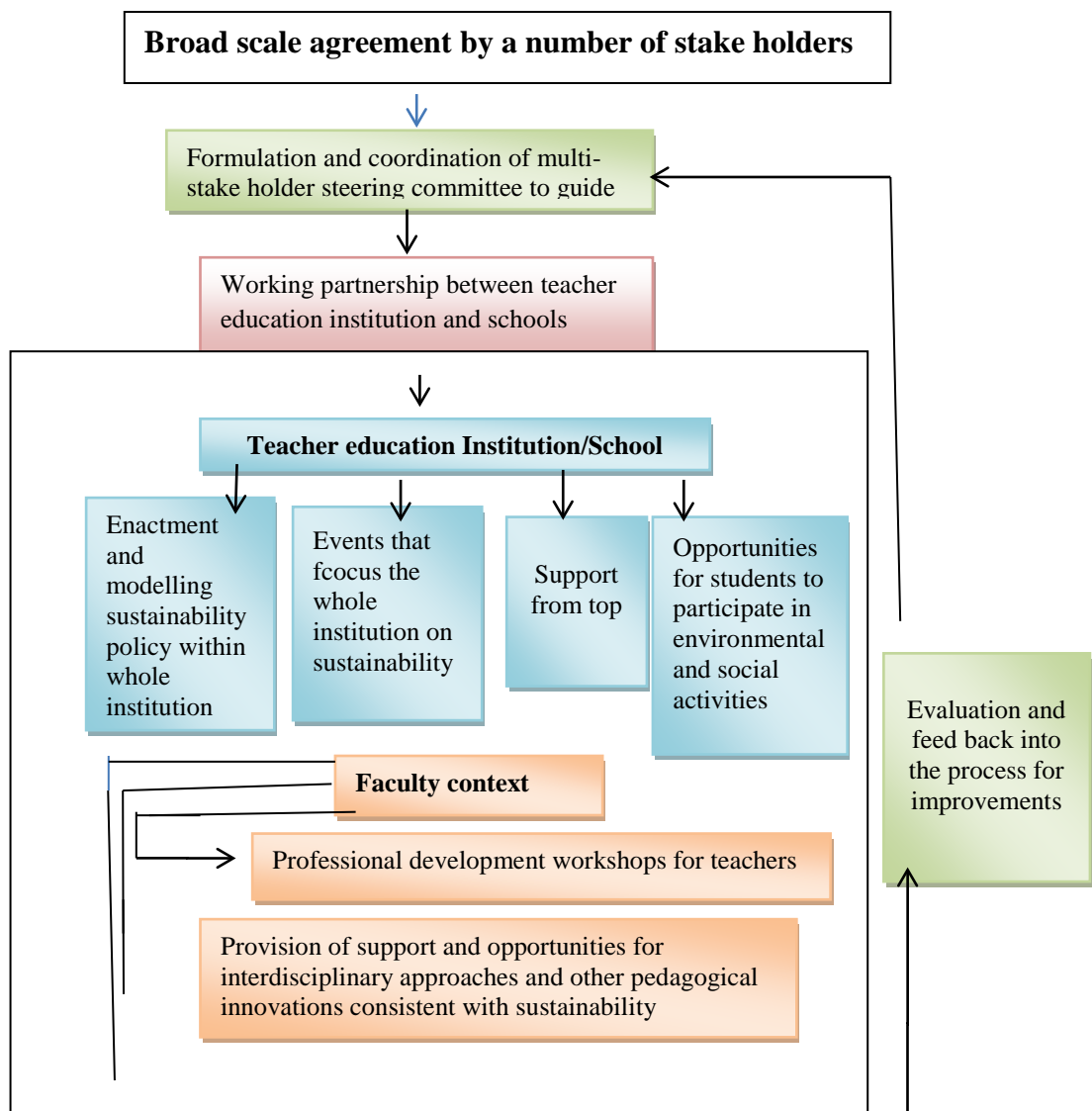


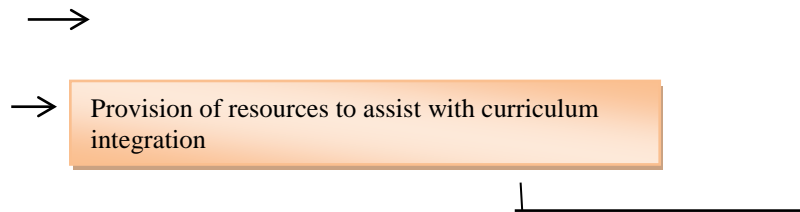
- xviii. Organization of Schools Recognition programs and institutions that promote education for sustainable development (as, for example, the movement of eco-schools).
- xix. Institutional capacity is a significant means for facilitating movement towards sustainable development through the formation of eco-clubs and other activities, students should be encouraged to engage in a range of conservation activities.
- xx. To protect and conserve the Environment, emphasis should be given to EE in both Government and private systems of education. In any of these education systems, teachers play a very significant role in developing a greater awareness about environment among students. It calls for a radical change in the way teachers think, live and work.
- xxi. In a school calendar several national and international 'days of celebrations' relate to aspects of social, ecological, political and economic sustainability. These days can be celebrated through special events, such as displays, guest speakers and concerts, or through relevant teaching units and field trips or outdoor activities integrated into the school curriculum. Such activities can promote thinking about sustainable futures by teachers, students and the wider community.
- xxii. Formulation of student clubs for organising activities for sustainable development is also an effective measure for integrating sustainable development issues into young people's thinking and activities. They can organise such activities on weekends or in vacations such as: Environment clubs, Scouts, Guides, etc.
- xxiii. In practice, there is no opportunity for teachers to offer something beyond or outside the curriculum. The following Table shows that who can make what kind of choices in the procedure of educating in the national academic institutions.
- xxiv. A balance between "top-down" and "bottom-up" approaches needs to be maintained if ESD is to realize its full potential and thereby developing a new skill and approach. Sterling (1997) reiterates that the educational system needs the whole scale reorientation if ESD is to succeed. This is possible when we understand that "... all issues connect and impact on each other and should be seen as an advantage rather than a problem. By working in one issue in one area, it is often possible to show links with and make a positive impact on other connected issues – to promote positive synergies intentionally.

The UNESCO (2004, P20) formulated in its "Draft International Implementation Scheme", key elements for acquiring objectives for ESD which can conclude all the recommendations for its implementation by describing that:

“ESD requires a re-examination of educational policy [...] in order to focus clearly on the development of the knowledge, skills, perspectives and values related to sustainability. This [...] requires a review of recommended and mandated approaches to teaching, learning and assessment so that lifelong learning skills are fostered. These include skills for creative and critical thinking, oral and written communication, collaboration and cooperation, conflict management, decision-making, problem-solving and planning, using appropriate ICTs, and practical citizenship”.

The initiatives that have been identified above demonstrate a model (Fig.9.2) which supports the Whole-of-System Model presented by Jo-Anne et al. (2007). This model assumes that change towards sustainability is only possible if all levels and contexts within the system are aligned in their efforts to work towards sustainability. This model also demonstrates the importance of involving a broad scale stakeholder in initiating and monitoring the efforts for ESD.





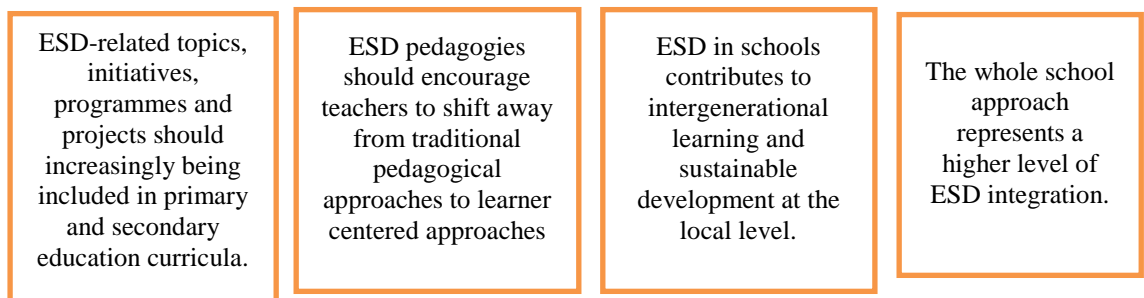
**Fig 9.3:** Whole school model for ESD

### 9.11 Conclusion

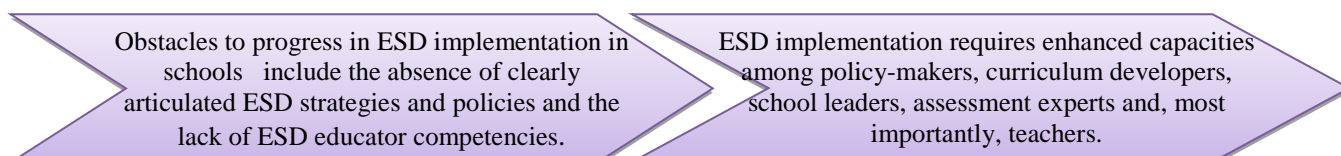
Hence, it is clear that sustainable development calls for a paradigm shift in our educational systems right from the school level up to the university level. In fact, a sustainable way of life cannot be achieved without an appropriate education system designed to internalize the principles of sustainability in the life and work of our youth. Since, it is a government initiative to make ESD an integral part of formal education through its national curriculum framework. Considerable work is being done in the direction of integrating environmental concepts into the existing curriculum but developing new strategies and preparing instructional material for effective implementation of ESD in the both private and public school systems. However, there is a dire need of training the teachers in both the education systems of Pakistan, so that students of both the systems can develop their critical thinking skills to act positively towards environment in future as citizen of Pakistan.

For policy, it is recommended that teacher-training institutes should include environmental issues in their curriculum. Mere inclusion of topic would not work therefore, it is important to train teachers in pedagogical strategies to orient them as how to teach sustainable development education to students through critical thinking, problem solving, and action. In the light of the results of the study, it is suggested that a whole school system should be ready for the inclusion of ESD although is not easy but not impossible and needs to instil motivation and enthusiasm in teachers by providing them with guidance, confidence and reforms in assessment system. Following figure reflects the inclusion of ESD in schools.

**Fig: 9.4 Key features: preparing young people for the future:**



### Challenges



Source: UNESCO (2014) Final Report, *Shaping the future we want, UN Decade of Sustainable Development*.

## **CHAPTER TEN**

### **Way forward from Decade of sustainable development education to Sustainable Development Goals (SDGs)**

#### **10.1 Introduction**

The purpose of this chapter is to present the future efforts for sustainable development and education for sustainable development. Decade of Education for Sustainable Development (DESD) came to its closure in 2014, the targets completion time for Millennium Development Goals (MDGs) was up to 2015 and now UN has set out new Sustainable Development Goals (SDGs) to stimulate actions for people, planet and prosperity for next 15 years. This new initiative in the form of SDGs is worth mentioning here as these seek to fill the gaps in previous sustainable development agenda and aims to complete what millennium development goals did not achieve. Moreover the achievements of all these goals revolve around the universalization of education.

It has been fifteen years since the Millennium Development Goals (MDGs) were introduced and since that time, huge efforts have been made in closing the development gap. Moreover all eight MDGs provided a framework to all the countries around which they could develop policies and international aid programmes to improve the lives of their citizens and live with sustainability. Despite all these efforts these were proved to narrow. It appeared from the World Bank report as the deadlines of MDGs approaches, there are

more than 800 million do not have enough food to eat, women are still struggling hard for their rights, millions of women still die in child birth, more than 57 percent of children are still out of school and environmental hazardous are still increasing (World Bank, 2015).

However, as times changed, the UN realized that there was a need to adjust the way that we approach international development. As such, in 2015, the UN replaced the MDGs with revised Sustainable Development Goals (SDGs). SDGs plan the completion of unmet targets of MDGs with more focus on sustainable development including efforts towards the healthy and prosperous life for everyone and raise the rate and standards of education with equal opportunities of getting education for all.

Table. 10.1: **Main features of MDGs and SDGs**

Millennium Development Goals (MDGs)	Sustainable Development Goals (SDGs)
1: Eradicate Extreme Poverty and Hunger	1.End poverty in all its forms everywhere
2:Achieve Universal Primary Education Promote Gender Equality and Empower Women	2. End hunger, achieve food security and improved nutrition, and promote sustainable agriculture
4: Reduce Child Mortality	3. Ensure healthy lives and promote wellbeing for all at all ages
5: Improve Maternal Health	4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
6: Combat HIV/AIDS, Malaria and Other Diseases	5.Achieve gender equality and empower all women and girls
7. Ensure Environmental Sustainability	6. Ensure availability and sustainable management of water and sanitation for all
8: Develop a Global Partnership for Development	7. Ensure access to affordable, reliable, sustainable and modern energy for all
.	8.Promote sustained, inclusive and sustainable economic growth, full and productive employment, and decent work for all
	9. Build resilient infrastructure, promote inclusive and sustainable industrialisation, and foster innovation

	10. Reduce inequality within and among countries
	11. Make cities and human settlements inclusive, safe, resilient and sustainable
	12. Ensure sustainable consumption and production patterns
	13. Take urgent action to combat climate change and its impacts.
	14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development
	15. Sustainably manage forests, combat desertification and halt and reverse land degradation, and halt biodiversity loss.
	16. Promote just, peaceful and inclusive societies.
	17. Revitalise the global partnership for sustainable development

**Source:** UN (2015)

The Sustainable Development Goals represent a shift in thinking and focus from the UN community. The new focus of sustainability is a reflection of the anti-aid dependency thinking and towards more long-term development and self-sufficiency. This makes the Goals more viable in the long term and is perhaps an indication of a potential end point in support for developing countries. The sustainable development goals have not only increased in number, they are also more specific and weave in elements of the previous MDGs. In addition, the SDGs implement a target-based approach, enabling the outcomes to be better measured (Sachs, 2012). According to Sarabhai (2014) unlike the Millennium Development Goals (MDGs) that were targeted primarily at developing countries, the SDGs are applicable to the world as a whole. MDGs were largely determined by OECD (Organization of Economic Cooperation and Development) countries which are known as ‘rich nation club’ whereas the SDGS were formulated by the consultation and face to face surveying of over 100 countries (Caprani, 2016). Table 10.1 shows the Millennium Development Goals (MDGs) on left hand side and Sustainable development Goals (SDGs) on the right hand side to get better conceptualization of both set of goals.

**10.2. Status of achieving Millennium Development Goals for 2015 – Pakistan:** As the deadline for achieving the MDGs has come to an end, the pace of progress for several countries in the world towards achieving these goals also varies due to many internal and

external factors. The pace of progress is made measurable through associated quantifiable targets and indicators.

Pakistan has adopted 16 targets and 41 indicators against which progress towards achieving the Eight Goals of the MDG's is measured. Time series data available for 33 of these indicators reveal that Pakistan is on track to achieve the targets on 9 indicators, whereas its progress on 24 indicators is off track.

**(i) Eradicate extreme hunger and poverty In MDG 1:** progress on all indicators is lagging. The head count poverty (caloric plus basic needs) in Pakistan, though decreasing from 34% in 200-01 to 22.3% in 2005-06, is lagging behind the target of 13%. Though this indicates a lot of progress towards poverty alleviation,

**(ii) Achieve universal primary education:** Pakistan's progress has also been severely lagging in Goal 2, achieving universal primary education as it is off track in achieving the targets set for 2015 in all three indicators. Pakistan's literacy rate, though having improved marginally over the years remains considerably short of the MDG target of 88% by 2015 at 59%, and closer inspection reveals large gender and rural/urban disparities (Govt of Pakistan, 2015).

**(iii) Promote gender equality and empower women:** In the MDG area of promoting gender equality and empowering women (MDG 3), Pakistan has achieved one of the highest ratios of women parliamentarians in the South Asia Region. The proportion of women in the national parliament (National Assembly and Senate) stands at 22.2%.

**(iv) Reduce child mortality:** In MDG 4, Pakistan has also achieved its target for the proportion of children under five who suffered from diarrhoea in the last month and received ORT, and is on track to meet its target for the Lady Health Workers' coverage of target population in 2015.

**(v) Improve maternal health:** Closely linked to MDG 4 is MDG 5, improving maternal health, for which Pakistan has a considerable distance to go to meet the MDG targets by 2018, especially in reducing the maternal mortality ratio and increasing the proportion of births attended by skilled health personnel.

**(vi) Combat HIV/AIDS, malaria and other diseases:** in the light of MDG 6, as the prevalence of HIV among the population has been historically low; Pakistan has surpassed the target for reducing HIV prevalence among 15-24 year old pregnant women and vulnerable groups. Progress in the proportion of TB cases detected and cured with ORS, an indicator for MDG 6, is on track with Pakistan has achieved its target for 2015.

**(vii) Ensure environmental sustainability:** With regards to MDG 7, Pakistan has achieved the target of access to improved water resources when three sources of improved water are taken into account: tap water, hand pumps and electric motor propelled water. Pakistan has also surpassed its target of converting 0.920 million of vehicles on Compressed Natural Gas (CNG) with more than 2.8 million vehicles reported to be running on CNG in 2013. Pakistan is on track to meet the target for land protection for the conservation of wildlife as a percentage of total land area, an indicator for MDG 7. Overall, with four out of seven indicators on track, Pakistan is likely to achieve MDG 7 with continued efforts; this is the only goal where the majority of indicators are on-track to be attained (Govt of Pakistan, 2015).

### **10.3 Implementation of SDGs**

UN has proposed the collaborative efforts at both national and international levels by involving all other stake holders for effective implementation of SDGs. At national level countries are expected to set their own goals, targets and priorities in the view of implementing the SDGs according to their domestic capabilities and condition. At international level there is a need of policies, regulations, monitoring tools, measurable goals and targets and participatory mechanisms to review the implementation of the agenda at the national, regional and global levels (UN OWG, 2014). The UN emphasized the importance of engaging all relevant stakeholders in putting the new Agenda in practice: governments and public institutions will work closely with national parliaments, local authorities, international institutions, business and the private sector, civil society, academia, philanthropic organisations, voluntary groups and others.

Education is considered to be the first step for achieving sustainability. Despite the progress, the world failed to meet the Millennium Development Goal of achieving universal education by 2015, still 59 million children of primary-school age were out of school<sup>1</sup>. In order to close this gap the fourth goal of SDGs emphasizes on raising literacy rate worldwide.

### **10.4 Sustainable Development Goal 4 - “Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all”**

The 2030 agenda for sustainable development supports the idea the education is essential for the success of all sustainable goals (SDGs)<sup>1</sup>. Education also plays a vital role in

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<sup>1</sup>Source: Report of the Secretary-General, "Progress towards the Sustainable Development Goals", E/2016/75 <https://sustainabledevelopment.un.org/sdg4>



achieving goals on health, growth and employment, sustainable consumption and production and climate change. As stated by Irina Bokova Director General of UNESCO in her opening address on that occasion<sup>1</sup>:

“We know the power of education to eradicate poverty, transform lives and make breakthroughs on all the Sustainable Development Goals”(UNESCO, 2015 p 33).

With the stand-alone Goal 4 on education and its related targets, the 2030 Agenda for Sustainable Development recognizes that education is essential for the success of all sustainable development goals (SDGs). Following Table shows the related targets for achieving Goal 4 in 2030 along with the achieving targets of Decade of Sustainable Development (DESD).

It is evident from the Table 10.1 that the features of DESD were focused on reorientation of education towards sustainability. During this decade the emphasis was to adopt approaches and pedagogies for ESD in exiting educational systems. Reorientation of education towards sustainability is the second goal of Rio 21 agenda while SDGs emphasized more on raising literacy to raise the level of conscious for ESD which is first goal of Rio 21. May be it was due to the fact that success stories for ESD mostly found in the countries where the literacy level is high. During the decade (2005-2014) international organizations put their efforts in promotion of ESD although, the impacts are not same everywhere and an overview of follow-up of DESD is as follows.

**Table: 10.2Main Features of DESD and targets of SDGs for achieving Goal 4**

<b>Features of DESD</b>
Improving access to quality basic education.
Reorienting existing education programmes.
Developing public understanding and awareness; and providing training.
Nine long-term inter-sectoral thematic Programmes have been recommended initially:
International Leadership and Advocacy of the DESD.
Integrating ESD into Basic Education.
Reorienting General Secondary Education for ESD.
Integrating ESD into TVET.
Integrating ESD into Higher Education.

Teacher Education for ESD and Mainstreaming Cultural Diversity and Intercultural Dialogue in ESD.

Education for Sustainable Water Management and Education for Sustainable Ecosystems and Livelihoods.

#### Targets of SDGs for achieving Goal 4

By 2030:

Ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and Goal-4 effective learning outcomes.

Ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education.

Ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university.

Substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship.

Eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations.

Ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy.

Ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development.

Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, nonviolent, inclusive and effective learning environments for all.

By 2020, substantially expand globally the number of scholarships available to developing countries, in particular least developed countries, small island developing States and African countries, for enrolment in higher education, including vocational training and information and communications technology, technical, engineering and scientific programmes, in developed countries and other developing countries.

By 2030, substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially

least developed countries and small island developing states.
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Source: The UN Decade of Education for Sustainable Development (DESD 2005-2014), UNESCO(2015), Sustainable Developmentgoals:17 goals to transform our world.

### **10.5 Follow-up of Decade for Education for Sustainable Development (DESD)**

As mentioned earlier the year 2014 was the end of Decade of Education for sustainable Development (DESD). During this decade (2005-2014) all the member states were committed to integrate sustainable development issues in formal education. According to UNESCO report a strong trend can be seen in many countries towards the economical social and environmental problems during this Decade of Education for Sustainable Development. Despite of few unsuccessful stories several member states progressed towards achieving the goals of DESD with a desirable pace. In this regard UNESCO presented following key findings of Decade for sustainable development Education (DESD).

1. Sustainable agendas and education agendas are converging.
2. Political leadership has proven instrumental
3. Multi-stakeholders partnerships are particularly effective
4. Local commitments are growing
5. Whole institution approaches practised ESD
6. ESD facilitates interactive, learn driven pedagogies
7. ESD is being integrated into formal education
8. Non-formal and informal ESD is increasing
9. Technical and vocational education and training advances sustainable development.

Here Scotland presents a good example of implementing policies for DESD through a series of collaborative partnership between non-governmental organisations, government ministries, civil servants, education bodies and other educational stake holders. Scotland is said to be the first country in to world to make the delivery of ESD/LfS a core requirement of being a schoolteacher and ESD/LfS an entitlement for every school learner. Scotland is also acknowledged as having an Eco Schools Program that is one of the most successful in the world (Morag, 2015). According to UNESCO Scotland has made substantial progress

on the goal of the DESD “to integrate the principles, values and practices of sustainable development into all aspects of education and learning” (UNESCO, 2014).

This research took place at the end of the decade of DESD and all the empirical study results in the context of Pakistan and explored the current situation for practising ESD in a segment of formal education system and identified several challenges. These challenges are also supported by UNESCO as well. The UNESCO (2014) claimed that despite of all these success points UNESO has identified few challenges for over all implementation of ESD. These include, need for:

- ✓ Further alignment of ESD
- ✓ Institutionalizing of ESD
- ✓ More research, innovation, monitoring and evaluation

To create a new momentum UNESCO, as the lead agency of the Decade, has developed a Global Action Programme (GAP) on Education for sustainable Development. The GAP is the follow up to the United Nations Decade of Education for Sustainable Development (2005-2014). It was based on broad consultations and input from a wider range of stake holders, the programme was developed by the UNESCO General Conference in 2013.

The overall goal of the Global Action Programme is to generate and scale up action in all levels and areas of education and learning to accelerate progress towards sustainable development. This goal is further divided into two objectives, the first relating directly to the education sector and the second going beyond this sector:

(a) to reorient education and learning so that everyone has the opportunity to acquire the knowledge, skills, values and attitudes that empower them to contribute to sustainable development; and

(b) to strengthen education and learning in all agendas, programmes and activities that promote sustainable development (UNESCO 2014).

10.4.1 Priority areas for GAP;  
The Global Action Programme (GAP) on Education for Sustainable Development (ESD) identified five priority action areas to advance the ESD agenda are as follows:

**i. Advancing Policy:** Main streaming ESD into both education and sustainable development policies, to create an enabling environment for ESD and to bring about systematic change

**ii. Transforming and learning and training environment:** integrate sustainability principles into education and training settings.

**iii. Building capacities for educators and trainers:** increase the capacities of educators and trainers to more effectively deliver ESD.

**iv. Empowering and mobilizing youth:** Multiply ESD actions among youth.

**v. Accelerating sustainable solutions at local level:** At community level, scale up ESD programmes and multi-stakeholder ESD networks.

UNESCO invited key stakeholders to become members of the GAP Partner Network to drive forward the implementation of the GAP. Members of the GAP Partner Networks are divided into five groups, one for each priority action area of the GAP (UNESCO, 2015).

The UNESCO (2015) reported that IUCN, *Beydaar* Society and Echo Change are among the member partner for GAP from Pakistan. All these organizations working for GAP are working in private sector with collaboration of government. These efforts are proved to be limited as these are not addressing the communities in a large scale.

#### **10.6. The National Plan of Action for Accelerating Education-Related MDGs (2013-16) in Pakistan**

In September 2013 to achieving the Dakar Framework of Action, the Government of Pakistan completed the formulation of the National Plan of Action (NPA: 2013-16) which was designed to accelerate progress towards education related goals and targets identified by MDG/EFA for 2015/16. The key objective of NPA (2013) was to accelerate the progress towards achieving education-related MDGs in the next 3 years. Specifically, the Plan aimed at:

- Enhancing enrolment of out-of-school children in primary education;
- Increasing retention at primary level and completion of primary education by all enrolled children;
- Improving quality of primary education.

Pakistan took number of initiatives to make progress towards achievement of EFA Goals, including elimination of school fees, provision of free text books to students and legislation to declare free and compulsory access of children to education as their constitutional right. Although the country has lagged behind to achieve the targets of MDGs, nonetheless, a momentum has been built and required institutional mechanisms are being created to accelerate the pace of progress towards MDGs/EFA Goals (Ministry of Education, 2015).

### **10.7 Pakistan's future plans towards achieving new Sustainable Development Goals (SDGs)**

According to Ministry of Education and professional training, Pakistan stands fully committed to the targets of Sustainable Development Goals (SDGs) 2030 of UNESCO so much so that they have declared and adopted these goals as their national development goals 2030. The Permanent Mission of Pakistan to the United Nations submitted their responses related to SDGs to the UN Secretariat with reference to letter No. DSD/2012/529 dated 28<sup>th</sup> September 2012. This letter contains a set of responses for questions related to preferences for SDGs, significance of SDGs in acquiring national goals, practicality of SDGs for countries at different levels of development, recommendations, proposals and measures of monitoring for SDGs in order to successful implementation. On the question of *key use of SDGs for your country*, Pakistan selected the key use of SDGs in “defining national policies” and in “influencing national budget allocations” among many other options. On the issue of formulating universally applicable SDGs relevant for countries at different level of development, Pakistan recommended; “simply, put, the nature and level of responsibility for different set of countries (given the level of economic development) should and must be different”. Insofar as social targets in the developing countries like Pakistan are concerned (such as poverty eradication, food security, health empowerment etc), they would assume a larger portion of meeting them given their direct bearing on national economic development and good governance. Pakistan believes that the new global partnership for development be constructed around the institutional arrangements and outcomes of process which were agreed at Rio+20 such as:

- a. The new Financing Strategy for Sustainable Development to be constructed through a working Group should be the central piece of the global partnership.
- b. The strengthening of the United Nations Environment Programme must lead to enhance provision of resources.
- c. The review and monitoring should be done through the High level Forum on Sustainable Development.

Moreover, Pakistan had enlisted its priority areas that must be addressed through SDGs were mostly related to energy security, poverty alleviation, water security disaster and risk management and rehabilitation, child mortality, women empowerment and external debt. According to official documents, education is the top priority among other SDGs 2030. To achieve this goal Federal Government has increased the share for education in budget up to

25% in total budget for education. According to ministry of education Pakistan the key challenges to Pakistan's education are:

- (i) lack of access to education; (including shortage of nearby schools, teacher shortage and absenteeism, poor teaching quality, poor school environment, family poverty, insecurity, natural disasters and other factors) and
- (ii) poor quality of education;
- (iii) equity; and
- (iv) governance.

Other influencing factors include budgetary constraints and weak management, which indirectly highlights the lack of access and poor quality of education; and a set of external factors such as poverty, adverse law and order situation and terrorism;

These challenges are strongly interlinked with poor teaching quality, teacher absenteeism, etc. As cumulative effect this generates lack of interest/motivation among students who dropout from school – adversely affecting every EFA goal and its corresponding targets (Ministry of Education 2015).

Moreover, Government of Pakistan declared SDGs2030 are human centric targets and these targets are addressing all the needs for human being without any discrimination. Relevant ministries are fully functional to achieve these ambitious goals. According to Federal Minister of Education:

“These goals of human development cannot be achieved, even if a single nation, or country or a human being is left behind. No one should be allowed to stay behind for lack of resources or bad governance or anything else. Let us stand united for a common goal of a better future, a better world”(Government of Pakistan 2015).

Achieving all the targets related to SDGs is a big task for Pakistan. In the light of past performance following 4 R can be suggested as a road map to Government of Pakistan:

Table. 10.3: 4R of Roadmap to SDGs Pakistan

<b>4R of Roadmap to SDGs Pakistan</b>	
1	Realigning the Policies
2	Recalibrating Education Sector Plans
3	Recalculating the finances
4	Responsive Monitoring and Evaluation

A brief review of the Pakistan’s progress on MDGs revealed that policies were not coordinating with the desired outcomes. In order to diminish the gap between the desired

and achieved outcomes in the next 15 years there is need to revisit the education policy and align it with desired targets outlined in the SDGs. For this purpose consultation with all the stakeholders and commitment to be matched with required funds and implementation processes is needed. All the provinces should develop the Education Sector plans strategically and operationally recalibrated for SDGs in order to provide equitable, quality education and life-long learning opportunities for all in the country.

According to Incheon declaration all the governments should allocate at least 4-6 percent of their GDP or at least 15-20 percent of their total public expenditure on education. Currently Pakistan is spending 2.1 percent of its GDP on education (World Bank 2015). However, not only it is important to increase the share for education in budget, the Incheon Framework for action (IFA) calls for expanding the tax base to enhance the overall budget for Pakistan.

There must be a responsive monitoring and evaluation system to ensure the progress in right direction towards the SDGs. It must be undertaken by the government and relevant internationally comparable data should be made available to all policies and practices<sup>2</sup>.

## **10.6 Conclusion**

For 15 years eight millennium development goals, agreed by UN member states in 2001 served as a guiding force for tackling several issues affecting the lives of children and young people around the world. These goals were mainly focused towards the donors, international organizations and non-governmental organizations (NGOs) to reduce global poverty. Over the time tremendous progress has been made in preventing child mortality, reducing gender disparity and in more targeted development spending. However, despite all these efforts and developments, progress has been extremely uneven because there are still thousands did not escape poverty, get a quality education or receive protection from violence (Caprani, 2016).

In Sep 2015 world leaders have set forth new 17 Sustainable Development Goals (SDGs) for human development focusing on the rights and well-being of every child under the slogan 'leave no one behind'. The major thrust of SDGs' five 'P's: people, planet, prosperity, peace and partnership<sup>2</sup>. The government of Pakistan is committed to achieve all

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<sup>2</sup>Education-related Sustainable Development Goals (SDGs) (2015) Briefing Note No.107. Institute of social and Policy Sciences



the targets of SDGs, attainment is hard to achieve unless the gap between desired targets and achieved outcomes would be diminished. Education is a major thrust of SDGs and to achieve, there must be increase in budget for education in Pakistan.

## **CHAPTER ELEVEN**

### **Conclusion summary and future implications**

## 11.1 Conclusion

This research study has aimed to investigate the student-teachers', teachers' and head teachers' perceptions and practices of ESD in primary schools and in ITE institutes in Pakistan. The review of literature shows that the concept of Sustainable Development evolved from a wide range of interpretation and definitions and presented the contested nature of term Sustainable Development and Education for Sustainable Development. The confusion in understanding of difference between Environment Education and ESD caused the absence of an agreed definition for ES and provided also challenges for the implementation of ESD in education (UNESCO, 2009, p 22). This debate mainly reflects the complexity and the dynamic nature of these concepts. However, there is a general agreement that sustainable development requires the adoption of a comprehensive and integrated approach to economic, social and environmental processes (Banuri et al., 1994; Najam et al., 2003). It means that ESD requires a complementary understanding of elements of environmental literacy, but more generally requires understanding of interdisciplinary systems and requires the acquisition of process-based tools supported by complex adaptive system theory keeping less emphasis on traditional way of teaching and learning (Dale, 2001). Due to this ESD requires certain key competencies through innovative teaching strategies and redesigning of curriculum.

To establish a background of the study before exploring the current situation of adopting strategies for ESD in the schools in Pakistan, a brief review of history and educational system in Pakistan shows that education in Pakistan is influenced by the different cultures of the subcontinent and colonial system of education. In Pakistan three parallel streams of education are working together which are public education, private education and *madrassa* education. Although their share is not equal as public sector cater for more of population than other two sectors. In Pakistan hierarchical model is prevailing in the structure of education. Pakistan spends only 2% of its GDP on education and the literacy rate in Pakistan is 60%.

Since 1980 Pakistan has developed a number of policy frameworks on environmental and sustainable development issues. Islam which is practiced by the majority of population in Pakistan also supports the idea of sustainable development. At government level, Pakistan is taking initiatives to follow the Rio agenda 21 in 1992 but the pace of progress in tackling certain issues for SD is unsatisfactory. In the late 1990's, the principles of EE began

featuring in textbooks. Around the same time, environment was introduced as a cross-cutting theme as well as a standalone subject at Bachelor's and Master's levels. At the school level the inclusion of content related to environment is included in the curriculum programmes. More than 20 universities are offering undergraduate, post graduate and doctoral studies in Environmental science, Education and Engineering. Establishment of Green schools can be seen in private schools mainly with the collaborations of WWF and IUCN. Despite all these efforts in Pakistan, environment education (EE) has not been prioritized. However, it appears as a part of almost all of the environment-related documents. These documents generally lack practical approaches and implementation guidance to achieve the desired goals and objectives. The review of literature highlighted Pakistan's contribution towards sustainable development and at the same time it showed the lapses of many Pakistan's top-down initiatives to implement ESD in public and private institution. It also indicated the gaps in terms of documentation of actual sustainable development projects. Moreover, information concerning Pakistan was less prevalent in the available literature in academic research.

To address the main questions of the study focusing on practices and perceptions of teachers, head teachers and student teachers for ESD, mixed method research methodology was adopted underpinned by interpretative and phenomenological philosophy. A mixed-methods approach to research is one that involves gathering both numeric information (e.g., on instruments) as well as text information (e.g., on interviews) so that the final database represents both quantitative and qualitative information (Creswell, 2003, p 20). Quantitative methods were applied to investigate the perceptions of teachers and student teachers regarding their practices in classrooms for ESD. The interviews were conducted with head teachers by following the qualitative method. To make the results clearer a curriculum analysis was undertaken for primary classes and for B.Ed Honours. In Pakistan the formulation of the curriculum is the responsibility of the federal government and it is centralised especially at school level. Reflecting on the idea of considering Social Studies and Science as an effective tool for integrating ESD by UNESCO (2006), a brief analysis of the primary curriculum of Social Studies Science and General Knowledge for class I-V was conducted. The analysis of curriculum shows that the national curriculum of Pakistan for primary grades and for ITE (B.Ed Honours) does not include a clear view towards education for sustainability grades. It seems that the Pakistani education system has succeeded in adding some environmental content into the existing curriculum, but it is still taught in the traditional manner. This was also observed by Mirza (2010) who noted that the issues

related to ESD in initial teacher education need more detail and attention as these have not been seriously addressed, which might influence the effectiveness of these teaching programmes, especially in the area of ESD.

The analysis of the perspectives of head teachers revealed a scenario of ESD in schools, ranging from issues in its implementation to suggestions for improvements. The practical significance of these findings is the identification of specific areas of needed professional development for head teachers. The lack of conceptual understanding affected the capacity to introduce ESD on the part of head teachers. Almost all the respondents believed that schools should provide learners with experiences and opportunities to develop problem solving skills and the ability to think critically. The need for diverse teaching approaches and the use of a variety of teaching resources was acknowledged as an important step to ensure this process.

All the head teachers were consistent in their views about teacher training and active involvement to achieve the goals for ESD. They all believed that all the preferred strategies require the direction, content and targets which would lead to a well-thought out and well-planned teaching programme with a long term impact. Head teachers from private schools described that they receive fewer opportunities for teacher training programmes than of public schools. This situation is also evident in a survey conducted by DFID in schools of Punjab. According to them in subject-specific methodology training, public school teachers received more training than that of private schools (Coleman, 2010).

The analysis of the data from the study showed the unfamiliarity with the term ESD by the participants of the study but the term environmental education was known by all. This was due to the fact that the term sustainable development is absent however, the content related to ESD can be traced in primary grades curriculum and in ITE. Therefore, the teachers from both private and public sectors and student teachers experienced the limited and traditional implementation of teaching methods in their curriculums.

The rationale behind the unsatisfactory implementation of ESD identifies a number of challenges for the current actors and partners. First of all ESD is thought to be a policy adopted from West and this adoption process can result in contradictory outcomes if it is exercised at the policy level where policy is taken from the developed world to the developing world (Liu and Dunne, 2009, p.473). Guro and Weber (2010, p. 246) argue that the 'implementation process in developing countries takes place in a context of poverty,

poor capacity and human resources, and financial constraints as compared to Western countries'. Therefore, the main challenge, which is also a root cause of other challenges, is the lack of seriousness in the part of policy makers to implement this broad agenda in schools. The non-Governmental and civil society sectors have made some advances where the educational sector has lagged. In some cases NGOs have entered into cooperation with the formal education sector to fulfil the large teacher capacity building deficits (WWF, 2001). NGO's and community based development organizations have shown some promise at succeeding in rural areas, where large top-down government programs have failed to reach.

Moreover in countries like Pakistan where the centralised national curriculum determine the content and sequence of study in each discipline, implementation of ESD can be challenging and needs the involvement of all the stake holders to reorient the education. Such a system finds it difficult to experiment with alternative approaches and in practice there is no chance for teachers to offer something beyond or out of curriculum. The participants of the study highlighted the contextual issues related to teacher training, the provision of resources and large class size as the main challenges for adopting concepts and approaches for ESD.

One distinct feature which emerged in the context of Pakistan is the element of positivity among the school teachers, head teachers and student teachers about the purpose and initiatives for ESD. It indicates the readiness and great potential in the part of practitioners as they supported the goals and strategies for promoting ESD. They showed a mature approach with full recognition of the limitations of the existing structures. They have demanded a better implementation strategy with an underlying stress on the enhancement of their professionalism through their role in planning and designing policy, training, provision of resources and as well as issues related to their financial status such as increased pay, incentives and better social status.

In the light of all the discussion presented in the study it can be argued that the lack of success of ESD and other movements such as EE, is not due to lack of a clear definition, but there is a hierarchy of far larger problems that were mainly overlooked by the policy makers at all levels. This study explored the dissatisfaction about the preparation of teachers and support from the ministry of education for developing ESD. Moreover, it has tended to suggest a framework of recommendations to find the answer of the question how can we begin ESD? Because the topic "sustainability or sustainable development does not

appear in the curriculum framework. As key players in the provision of education and policy development, faculties of education have a fundamental stake in provision and promotion of ESD. An implementation process from international level to national level and a policy transfer to local or school level according with local and cultural needs is also needed. Since, it is a government initiative to make ESD an integral part of formal education through its national curriculum framework. Considerable work is being done in the direction of integrating environmental concepts into the existing curriculum but developing new strategies and preparing instructional material for effective implementation of ESD in the both private and public school systems is needed. Reforms in examination system should be prioritised by the policy makers as the traditional assessment system cannot truly assess the learning outcomes recommended in National Curriculum. Although such training is being provided to the teachers but these are not on a regular basis and do not involve all the teachers. However, there is a dire need of training teachers in both the education systems of Pakistan, so that students of both the systems can develop their critical thinking skills to act positively towards environment in future as citizen of Pakistan.

It can be concluded that progress in ESD is not uniform throughout the world. Despite many success stories, ESD is still lacking a significant public awareness in many countries of the world like Pakistan even after three decades of initiating efforts in the field of ESD by international organizations. The results of the present study showed that ESD activities are not highly visible in the educational institutions of Pakistan. However, at least 19 of the goals listed in the National Education Policy (NEP) (Government of Pakistan, 2009b) relate to ESD. These documents are agreed on the importance and undisputed position of sustainable development education as being a cross-curricular theme where, knowledge, beliefs and attitudes are integral elements of learning. Despite this, the promise of sustainable development has failed at the level of implementation in Pakistani education system where ESD is not prioritised systematically in formal primary education and in initial teacher education. Evidence of this lack of commitment to sustainable development can be traced in educational policy documents, curricula, teacher training textbooks and classroom practices. Pakistani students are faced with an education system that provides most of the message of sustainability but the narrative of Education for Sustainable Development is missing (see chapter 5). Teachers in Pakistan lack in awareness for ESD and they are not offered sufficient guidance for ESD. ESD offers multiple entry points across the curriculum. Moreover, the preferred strategy of interdisciplinary teaching for ESD requires reforms in pre-service and in-

service teachers' training programmes and revisions in the assessment system. Curriculum designers must make many decisions by relating the holistic and broad concepts of ESD to the locally relevant curriculum.

These findings can be linked with the models of ESD1 by Vare & Scott (2007). ESD1 corresponds to Education *about* sustainable development which is a dominant approach in most schools but it is not seen as effective. The model of education 'about sustainability' means a rare implementation in real life. This model emphasizes the theoretical aspect of knowledge. In other words it is like teaching sustainability by rote memorization. Education comes in this model often influenced by the power of central state institutions in contrast with Western countries which have approached the second step, Education *for* Sustainable Development from Education *about* Sustainable Development. This is underlined by Lindrose, (2009, pp.25-28) who notes that following the decade for ESD announced by UN, the focus in education *about* sustainable development has moved towards education *for* sustainable development. Nevertheless ESD is still lacking a significant public awareness in many countries of the world like Pakistan even after three decades of initiating efforts in the field of ESD by international organizations. Noticeably, most of the literature linking education and sustainability is drawn from Western contexts, and of course there are major challenges for sustainability facing these societies, but they are likely to be different from those facing developing countries. Given the developmental challenges mentioned earlier in respect to countries such as Pakistan, any list of actions for sustainability is likely to emphasize meeting basic needs and improving the quality of life, rather than dealing with problems associated with mass consumption. For example one could ask; sustainable development for whom? We might need to move the focus from the question of what teachers are supposed to teach with in ESD to the question: what is an ESD supposed to achieve? Initially policy makers and educators need to realize that the aims and goals for ESD cannot be the same all over the world. In considering ESD in the Pakistani context it is not appropriate to see the ESD through the lens of western/developed countries. As a developing country, Pakistan faces particular developmental challenges. Among them the most current and crucial problems include, mass poverty and illiteracy; environmental pollutions; limited natural resources and population density and terrorism. Nevertheless these issues are not quite the same within developed countries. Therefore, it must be realized that we need to develop ESD on place-based knowledge (Koger and Winter, 2010).

It means that the current efforts of international organizations to develop ESD in all its member countries might have limited success unless national education policy and teacher education is reformed. What is needed is a more coherent strategic response from policy-makers (Martin et al 2013). Such a strategy however also needs to put learning at its heart, which means moving from the more instrumental approach that has tended to dominate policy initiatives to date, to a more pedagogically based approach.

In summary it can be concluded that ESD needs a new framework which supports critical perspectives of the notion of sustainability and it should include core values, a strong global and international dimension along with decentred, locally meaningful and subject specific developments. My study has shown that in the context of Pakistan, teachers cannot meet the challenge of engaging students for ESD learning alone. The teachers need expertise and commitments from international organisations to policy makers at national level to encourage the transformation from the level ‘ESD1’ to ‘ESD2’ to prepare their students for the challenges in their sustainable development learning or the learning for sustainable development. In the response of all the criticism and debates on sustainable development, in 2015 world leaders set forth 17 Sustainable Development Goals (SDGs) for human development focusing on the rights and well-being of every child under the slogan ‘leave no one behind’. The government of Pakistan is committed to achieving all the targets of SDGs however, attainment is hard to achieve unless the gap between desired targets and achieved outcomes can be would be diminished. The developments and implementation of SDGs can enhance the efforts for sustainable development and ESD by focusing on education. it is notable that SDGs ( Goal 4, Education) emphasises quality education rather than simply its provision.

In Table 11.1 I have provided a clear summary of main areas of differences in western context and in Pakistani context that were revealed through the literature review and field study.

**Table: 11.1.** Key dimensions of ESD in UNO and Pakistani context.



No	Benchmarks	UNO context	Pakistani context
1.	<b>Terminology</b>	Sustainable Development Education	Environmental Education Economic Development Education
2	<b>Aims</b>	Ensure sustainable consumptions and production pattern. Take urgent actions to combat climatic change and its impacts	Ensure to meet the needs of present generations with economic sustainability and increase in literacy rate.
3	<b>Content</b>	Based on broad framework of social, environmental and economic perspectives with national and international developmental policies	Based on text books/ with a focus on environmental awareness and awareness of economic activities at national level
4	<b>Pedagogy</b>	Participatory and collaborative learning with exploratory and problem solving approaches	Traditional teaching methods to cope with examination system that mostly requires recalling of text.
5	<b>Constraints for desired implementation</b>	Greater range of definitions creating confusion ESD agenda is too big and overwhelming The issue of encouraging unsustainable pattern of consumption Lack of funding on the long term for all the teacher training and follow up. Sustainability is not a priority for political leader. Lack of coherence between global and national policy,	Lack of awareness for ESD Literacy rate Big gap between what national education policy suggests and how schools operate It is very difficult for most people to see the connections between global and local problems Lack of government support. Teachers have no motivation to implement ESD Lack of quality teaching-learning materials and resources for school lack of training of educators to provide inspired ESD
6	<b>Recommendations</b>	ESD-related topics, initiatives, programmes and projects should increasingly being included in primary and secondary education curricula.  ESD pedagogies should encourage teachers to shift away from traditional pedagogical approaches to learner centred approaches.  The whole school approach represents a higher level of ESD integration	ESD implementation requires enhanced capacities among policy-makers, curriculum developers, school leaders, assessment experts and teachers and most importantly a raise in literacy rate.

This study found many significant and useful results derived from perceptions and practices of ESD in Pakistan which can be helpful for developing efforts for ESD in Pakistan. However, this study should be understood by considering few limitations.

## 11.2 Limitation of the study

This study has tried to meet the objectivity of the topic however, some limitations should be considered for having impacts on the results:

The first limitation of the present study is the contested nature of the idea of sustainable development and education for sustainable development. This study has dealt with two contexts, the western context and the Pakistani context. The literature found in Pakistani context was not sufficient because ESD did not appear as a priority area for the research in Pakistan.

Another limitation in this associated with the lack of familiarity of the participants with the term ESD. Providing them with two definitions of ESD, was a real possible way to explore further about the ESD. This strategy meant that the responsibility and the ability of the researcher as both data collector and meaning constructor.

This study tried to cover the maximum areas for ESD practices by involving teachers and head teachers from both public and private schools and student teachers. Nevertheless these results cannot be generalised to another settings and backgrounds for gaining deeper understanding of ESD because for this study 10 primary schools were selected from both private and public sectors from two cities of Pakistan and 50 students from B.Ed Honours programme were selected.

Another limitation was associated with the curriculum review as the text books from public schools were selected because these are uniform throughout all the schools but almost every private school considers different text books.

### **11.3 Possible areas for future research**

Though the scale of the research is relatively small, hopefully further it can initiate number of investigations in other fields of education too in Pakistan. The findings and course of present study has opened up many new areas to pursue to explore this issue further.

A systematic study of the perceptions of other stake holders associated with implementation of ESD, namely students and policy makers is needed in future studies and studies such as this will provide more information to develop ESD in Pakistan.

As the findings of the study clearly showed the insufficient training programmes for teachers for teaching ESD, a study which focuses on identifying teachers' training needs for ESD will be helpful for designing teachers' in-service and pre-service training programmes.

As this study has highlighted several constraints faced by teachers student teachers and head teachers, a further study can be administered to identify the impact of each constrain such as insufficient awareness of ESD and lack of knowledge for connecting different subjects and using teachers' centred pedagogy.

This study is focused on the perceptions of teachers and head teachers for primary grades and STs enrolled in B.Ed Honours programme. However, there is a need to investigate the perceptions of teachers in other levels of education such as secondary and college level in the same way study can be conducted with M.Ed students too who are opting ESD as a course of study to know about the change in their perceptions and practices during the studies and then after the study in their practical field.

This study presented a similarity between South Asian countries and many developing countries in the implementation and practices of ESD. Thus conducting a comparative study in the Pakistani context and of other contexts will yield fruitful results in exploring the phenomenon of ESD and initiating a reform frame work for effective implementation of ESD.

#### **11.4 Next Step**

The present study showed the understanding and practices of ESD an emerging popular idea in educational system in Pakistani context and the perceptions present in literature. The present study identified a wide range interesting ideas that needs to be investigated to gain a deeper understanding of ESD. This study can be fruitful by presenting it in seminars and conferences at national and international level to communicate the findings with other educational communities. The results of this study can lead towards further studies in this field. Being a faculty member of a university for teacher education the recommendation and suggestions emerging in the study can be practised in the class rooms by the researcher.

ESD is an evolutionary process, needs commitment and strength to embark on the long and hard journey to follow the UN goals especially for Pakistan with one of the most diverse and under developed education systems in the world. It is the time to learn from the wisdom and experience of other countries with success stories by keeping in mind requirements suitable for our own local context. In short the end of present study is the only one step to explore the practices of ESD at a small scale and take the agenda of ESD further in the Pakistani context.

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## Appendix 1

### Institutions Offering Environmental Education in Pakistan

No	Name of the Organization/ University/Institution	Program/s Offered	No	Name of the Organization/ University/Institution	Program/s Offered
1	University of Karachi	M. Sc. Environment Science (Evening), M. Phil, and Ph.D	21	Gomal Uni. D.I Khan	BS Environmental Sciences (4 years)
2	NED University of Engineering and Technology, Karachi	M. Sc. Environmental Engineering	22	IndusInternational Institute D.G.Khan	BS Environmental Sciences (2 years)
3	Mehran University of Engineering and technology, Jamshoro	M.S Environment Engineering Management	23	ShaheedBanazir Bhutto Uni. Dir	BS Environmental Sciences (4 years)
4	University of Engineering and Technology, Peshawar	MS and Ph. D. Environmental Engineering	24	Karakoram International Uni. Gilgit	BS Environmental Sciences (4 years)
5	University of Engineering and Technology, Lahore	M. sc Environmental Engineering	25	Hazara Uni. Haripur	BS Environmental Sciences (4 years)
6	National University of Sciences and Technology Rawalpindi	MS and Ph. D. Environmental Engineering	26	University of Haripur	BS Environmental Sciences (4 years)
7	Kinnaird College for Women, Lahore	B. Sc. (Honors) and M.A in Environmental Science	27	BahriaUni.Islamabad	BS Environmental Sciences (4 years)
8	Fatima Jinnah Women University, Rawalpindi	BS in Environmental Science Master in Environmental Science	28	Federal Urdu Uni. Of arts Science 7 Technology Karachi	BS in Environmental Science Master in Environmental Science
9	University of Peshawar	B. Sc.,M.Sc.& Ph. D. Env. Sci.	29	Lasbela Uni. of Agriculture, Water and Marine sciences, Uthal	BS in Environmental Science Master in Environmental Science
10	Law College, University of Punjab, Lahore	Postgraduate Diploma in Environmental Law	30	SardarBahadur Khan Uni. Quetta	BS in Environmental Science Master in Environmental Science
11	Lahore College for Women University, Lahore	B. Sc. (Honors), M. Sc.and Ph.D. in Environmental Science	31	The Uni of Lahore	BS in Environmental Science Master in Environmental Science
12	University of Punjab, Lahore	B. Sc. (Honors), and M.Sc. In Environmental	32	University of Swat	BS in Environmental Science Master

		Science			in Environmental Science
<b>13</b>	University of Punjab Lahore	M. Sc. and Ph. D. in Environmental Science	33	Comsats Institute of Information Technology Vehari	BS Environmental Sciences (4 years)
<b>14</b>	Government College of Technology, Lahore	Diploma in Environmental Control Technology	34	Qarshi University	BS Environmental Sciences (4 years)
<b>15</b>	University of Agriculture, Faisalabad	M. Sc. (Hons.) and Ph. D. Soil And Environmental Science	35	Government college Women Uni. Sialkot	BS in Environmental Science Master in Environmental Science
<b>16</b>	Balochistan University of Information Technology and Management Sciences Quetta	M. Sc. Environmental Management and Policy	36	Bahauddin Zakariya Uni. Multan	BS in Environmental Science Master in Environmental Science
<b>17</b>	COMSATS Institute Information Tech., Abbottabad	B.Sc. Environmental Sciences	37	Uni. Of Management and Technology	BS in Environmental Science Master in Environmental Science
<b>18</b>	Allama Iqbal Open University	M. Sc. Environmental Design BS Environmental Sciences	38	University of Gujrat	BS in Environmental Science Master in Environmental Science
<b>19</b>	Islamic International University	BS, MS and Ph. D. in Environmental Science			
<b>20</b>	University of Arid Agriculture Rawalpindi	M. Sc. Environmental Science			

## Appendix 2: Curriculum analysis for B.Ed Honours (for ESD)

	ESD concepts	Contents	Subjects/B.Ed Hons(Elementary, Secondary)	
Social and Political perspective	Peace and Human Security	Human rights,Citizenship(rights and responsibilities, equality and freedom	Social studies	(Elementary)
		Teaching about special social issues	Social Studies	secondary
		Population growth and its effects Peace and sustainability, understanding of peace and conflict, anger management, controversial issues, creating a better world, how to resolve conflicts, positive attitudes.	Social studies	(Elementary)
		Making Socially Responsible Citizens, Building a community, Fostering positive values and social skills in young children, Developing civic and social responsibilities		(secondary)
	Gender Equality	Women' rights	S.Studies	Elementary
		Gender Disparity Concept of gender equality Factors affecting the status and role of women 4.3 Steps towards reducing gender disparity	Contemporary Issues and Trends in Education	Secondary
	Cultural Diversity	The dynamics of culture, multi culturism, civilizations, multi cuturalism and its implications		Elementary
	Health	Health Education / Drug Education 7.10. HIV / Aids, STIs, Hepatitis	Problems and issues in education	Secondary
	Governance	The Government of Pakistan, democracy, civil society and role of civil society	Pak.Studies	
	Pop. Edu.	Pop. Growth, Pop. Environment, Economyetc, Population growth and its effects.		
		Pop. Edu, Impact of Population Growth on National Development. 5.4 Roles and responsibilities of family, school, mosque and community in population education. 5.5 Steps towards population planning and welfare	Contemporary Issues and Trends in Education	Secondary
Environ mental	Awareness of environment	Basic needs for living things, Ecology, Diversity and Adaptation		

		Human interaction with environment, Global warming		
		Becoming environmentally responsible citizens, Helping children build knowledge about the physical environment, Types of pollution 6.2 Causes of pollution 6.3 Environmental education	Environment Education	Secondary
		consider how best environmental awareness can be enhanced through schools	Contemporary Issues and Trends in Education	Secondary
	Climate Change	Weather , seasons, Constant change on Earth, Global warming factors effecting weather and climate of Pakistan	S.Studies	Elementary
	Disaster prevention	Natural and man -made disasters, Disaster management	Pak.studies	Elementary
	Recycling	Projects by recycling the material	Art & craft	Secondary/Elementary
Economic perspective	Poverty reduction	Pop. And Economic progress, learning about economic activities	S.Studies	Secondary
	Corporate Responsibility	Important sector of economy(Industry, Trade)	Pak.Studies	Elementary
	Market Economy	Importance of agriculture in the economy of Pakistan	Pak.Studies	Elementary
Global perspective	Comparative perspective	Comparison of teacher education in developing and developed countries		
		Global Issues in Comparative Perspective (focusing developing countries)	Contemporary Issues and Trends in Education	Secondary
	Global citizenship	Bringing the “outside World” into Elementary Education classroom Building global connections through geography	S.Studies	Secondary

	Use of IT skills	Interfacing with computer, use of internet, videos animations broad casting, learning through internet, interactive games and puzzles, planning for ICTs	Information and communication Technologies (ICTS) in Education	Elementary/ Secondary
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### Appendix 3



Dear colleague,

You are being invited to participate in an academic research study by giving an interview . This interview aims to identify the perceptions and the practices held by the Head teachers in the schools of Pakistan. This interview is a major instrument for my data collection for the completion of my PhD degree.

The study is concerned with an important topic namely Sustainable Development Education (ESD) and how school teachers understand it. ESD is gaining importance throughout the world and for the Ministry of Education Pakistan. Hence, your response will be important in understanding and developing this topic in Pakistan.

Taking part in this research is voluntary; it is up to you to decide whether to take part. If you decide to take part you are still free to withdraw at any time and without giving a reason. All information which is collected about you will not be identified in the reported findings. Any views expressed will not be attributable to any individuals in the reported findings.

I will be pleased to send you the summary of the interview results if you desire. Please state your responses carefully, honestly and freely. The completion of the interview requires no more than 20-30 minutes.

The research instruments have been reviewed by the Ethics Committee at the University of Glasgow. If you have any concerns regarding the conduct of this research please do not hesitate to contact my supervisor professor Dr. Margery MacMahon [Margery.McMahon@glasgow.ac.uk](mailto:Margery.McMahon@glasgow.ac.uk). Phone 01413303018

or for further information you can contact the College of Social Sciences Ethics Officer by contacting Dr Valentina Bold, College of Social Sciences Ethics Officer, [Valentina.Bold@glasgow.ac.uk](mailto:Valentina.Bold@glasgow.ac.uk).

Yours sincerely,  
Asma Khanum  
PhD student  
Faculty of Education  
University of Glasgow,UK

## Appendix 4



### Consent Form

**Title of Project:** Environmentally conscious global citizens: An Evolution from Environmental Education to Education for Sustainable Development in Pakistan.

**Name of Researcher:** Asma Khanum

1. I confirm that I have read and understand the Plain Language Statement for the above study and have had the opportunity to ask questions.
2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason.
3. I have no objection for being the interview audio-taped.
4. I will receive the copy of transcript for verification.
5. I understand that I will not be identified in any report or publication.
6. I agree / do not agree (delete as applicable) to take part in the above study.

\_\_\_\_\_  
**Name of Participant**

\_\_\_\_\_  
**Date**

\_\_\_\_\_  
**Signature**

**Asma Khanum**  
\_\_\_\_\_

**Researcher**

\_\_\_\_\_  
**Date**

\_\_\_\_\_  
**Signature**



## Appendix 5

### Interviews

**Topic to be discussed:** Environmentally conscious global citizens: An Evolution from Environmental Education to Sustainable Development Education in Pakistan

#### Issues in the topic:

- Description about the concept of Sustainable Development Education (ESD).
- Description about activities related to ESD participating by the institutions
- Description about the support for the teaching of ESD

#### Types of questions

Demographic and open ended questions of descriptive and experiential nature

#### Fill-in questions

- ❖ What is your qualification
- ❖ Tell me about your teaching experience.
- ❖ Are you a Head of a public or private institution?

#### Open ended questions

- Can you tell me something about Global citizenship and Environmental education as it is discussed widely in the international arena?
- Do you know about the Sustainable development Education?
- Do you have any support or guidelines from the Ministry of Education or any NGOs?
- Do you conduct the activities related to Sustainable extra-curricular activities?
- What is the current and future situation to find the awareness about the Sustainable Development Education?
- You have mentioned many characteristics of Sustainable development Education. What do you think teachers can practice according to all these characteristics?
- Have you discussed approaches to learning and teaching for Sustainable Development with the teachers in your school?
- What do you see you have achieved?
- Have there been any problems? What have you done to overcome these problems?
- Would you like to give few suggestions to make the idea of sustainable development more practical?

## Appendix 6



### Questionnaire for student teachers

**Research Title:** Environmentally conscious global citizens: An Evolution from Environmental Education to Education for Sustainable Development in Pakistan

#### 1. This section is about you and your education.

Gender:	Male	<input type="checkbox"/>	Female	<input type="checkbox"/>
The name of your institution _____				
Which programme you are enrolled in? _____				
The language of instruction in your institution is: Urdu <input type="checkbox"/> English <input type="checkbox"/>				

#### 2. This section is about your understanding of Education for Sustainable Development (ESD)

2.1 Do you know about Environmental Education?

YES ☐

NO ☐

2.2. Do you know about Education for Sustainable Development?

YES ☐

NO ☐

**Here are key definitions of Education for sustainable Development .**

ESD is an idea to integrate environment, society and economy into education for a better quality of life in the present as well as for the future

‘Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.’ (Brundtland, 1987).

#### 3. In your opinion Education for Sustainable Development (ESD) means: (please tick those you agree with)

3.1	Education related to environmental issues	
3.2	Education for the set of conservations of economic & social values	
3.3	Education for patriotism	
3.4	All of these	
3.5	None of these	

If you chose none of these then please explain why?

**4. Are ESD concepts covered in your syllabus? If yes specify the subjects**

--

**5. Key aspects of Sustainable Development Education are:**

No		Strongly agree	Agree	Undecided	Disagree	Strongly disagree
5.1	Learning to take care of the environment					
5.2	Learning for economic development					
5.3	Learning to develop social values					
5.4	Learning to know about shared values					

**6. Which of the following do you think are suitable approaches to introducing Education for Sustainable Development in the curriculum.**

	Concepts of Sustainable Development should be taught through:	Appropriate	Undecided	Inappropriate
6.1	A specific subject called Education for Sustainable Development			
6.2	Social studies, History & Geography			
6.3	Science subjects			
6.4	Extra-curricular activities			
6.5	Every part of curriculum			

6.6 Others please specify:

--

**7. In your opinion what are the goals for Sustainable Development Education**

No.	ESD must be directed to provide students with:	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
7.1	Knowledge about economic activities and social activities					
7.2	Skills of critical thinking and problem solving					
7.3	Real opportunities to participate in community activities					
7.4	Ways in which to protect environment nationally and globally					
7.5	Appreciation of cultural heritage					
7.6	Positive attitudes towards work, productivity, savings and consumptions					

**8. Delivering Education for Sustainable Development: (Please tick your response in both column (A) and column (B))**

<b>A</b> <b>How effective is your training programme to use each method</b>				<b>Teaching methods for the curriculum related to ESD</b>	<b>B</b> <b>How important is each following method for achieving the goals for ESD?</b>		
<b>No</b>	<b>Ineffective</b>	<b>Undecided</b>	<b>Effective</b>		<b>Important</b>	<b>Undecided</b>	<b>Unimportant</b>
8.1				Students work on projects that involve gathering information outside of the school			
8.2				Students study text books			
8.3				Students work in different groups on different topics and prepare pr			
8.4				Resource acquisition to equip yourself			
8.5				Encourage students to write letters to the officials to express their op			
8.6				support to some government policies.			
8.6				Students participate in events or activities in the community			
8.7				Activities in which students are encouraged to think critically			
8.8				The teacher lectures and the students take notes			
8.9				Controversial issues are discussed in class			
8.10				Using a case study approach			
8.11				Activities in which students are encouraged to think critically			
8.12				Invite people from community to talk to students			
8.13				Use the internet to gather information and engage with other stu			
8.13				world			
14				Making students do more practice for their examinations by reading the text books			

8.15. Any other please specify: \_\_\_\_\_

## Appendix 7



### Questionnaire for teachers

**Research Title:** Environmentally conscious global citizens: An Evolution from Environmental Education to Sustainable Development Education in Pakistan

#### 1. This section is about you and your teaching experience.

Gender:	Male	<input type="checkbox"/>	Female	<input type="checkbox"/>
What is your Qualification:_____				
Your institution:	Public	<input type="checkbox"/>	Private	<input type="checkbox"/>
How many years have you been teaching:_____				
What subjects do you teach_____.				
The language of instruction in your school is:	Urdu	<input type="checkbox"/>	English	<input type="checkbox"/>
Which curriculum do you follow	National curriculum	<input type="checkbox"/>		
any other specify— -----				

#### 2. This section is about your understanding of Sustainable Development Education(ESD)

2.1. Do you know about environmental education?	YES	<input type="checkbox"/>	<input type="checkbox"/>
2.2. Do you know about Sustainable Development Education?	YES	<input type="checkbox"/>	<input type="checkbox"/>

Here are key definitions of Sustainable Development Education (ESD).

ESD is an idea to integrate environment, society and economy into education for a better quality of life in the present as well as for the future.

‘Development that meets the needs of the present without compromising the ability of future generations to meet their own needs’(Brundtland, 1987).

#### 3. In your opinion Sustainable Development Education means:

Please tick those you agree with

3.1	Education related to environmental issues	<input type="checkbox"/>
3.2	Education for the set of conservations of economic & social values	<input type="checkbox"/>
3.3	Education for patriotism	<input type="checkbox"/>
3.4	All of these	<input type="checkbox"/>
3.5	None of these	<input type="checkbox"/>

3.6. If you chose none of these then please explain why?

#### 4. Are ESD concepts covered in your syllabus? If yes specify the subjects.

**5. Key aspects of Sustainable Development Education are:**

No		Strongly agree	Agree	Undecided	Disagree	Strongly disagree
5.1	Learning to take care of the environment					
5.2	Learning for economic development					
5.3	Learning to develop social values					
5.4	Learning to know about shared values					

**6. Which of the following do you think are suitable to introduce Education for Sustainable Development in the curriculum?**

No.	Concepts of Sustainable Development should be taught through:	Appropriate	Undecided	Inappropriate
6.1	A specific subject called Sustainable Development Education			
6.2	Social studies, History & Geography			
6.3	Science subjects			
6.4	Extra-curricular activities			
6.5	Every part of curriculum			

6 Others please specify:

**7. In your opinion what are the goals for Sustainable Development Education**

No.	ESD must be directed to provide students with:	Agreed	Undecided	Disagreed	Strongly disagreed
7.1	Knowledge about economic activities and social activities				
7.2	Skills of critical thinking and problem solving				
7.3	Real opportunities to participate in community activities				
7.4	Ways in which to protect environment nationally and globally				
7.5	Appreciation of cultural heritage				
7.6	Positive attitudes towards work, productivity, savings and consumptions				

**8.** Many guidelines for teaching strategies are being given in the National Curriculum for the content related to the ESD in the Table below. In the left column, tick if you have adopted the following strategies and in the right column rate the ticked ones according to the importance of the strategy. (Please do it even if you are not following the national curriculum)

	Tick the methods you have adopted in classrooms	Teaching methods for the curriculum related to ESD	Important	Undecided	Important
8.1		Students work on projects that involve gathering information outside of the school			
8.2		Students study text books			
8.3		Students work in different groups on different topics and prepare presentations			
8.4		Resource acquisition to equip yourself			
8.5		Encourage students to write letters to the officials to express their opposition or support to some government policies			
8.6		Students participate in events or activities in the community			
8.7		Activities in which students are encouraged to think critically			
8.8		The teacher lectures and the students take notes			
8.9		Controversial issues are discussed in class			
8.10		Using a case study approach			
8.11		Activities in which students are encouraged to think critically			
8.12		Invite people from community to talk to students			
8.13		Use the internet to gather information and engage with other students in the world			
8.14		Making students do more practice for their examinations by reading the text books			

**9.** In the left columns, tick if following strategies were adopted in your institution and in the right column rate the ticked ones according to the priority given to these steps. (1 for the highest priority)

		Strategy adopted by your institution	1	2	3	4	5
9.1		Guidance and advice on teaching materials and methodology to enhance awareness of ESD					
9.2		Workshops/courses to prepare teachers for the activities related to the ESD					
9.3		To observe different days related to the ESD( for example Earth Day, Heritage day, labour day)					
9.4		Raising awareness of students towards ESD					

9.5 Any other please specify:

**10. Indicate if the following facilities are provided by your school to teach the concepts for ESD in your classroom.**

	YES	NO
10.1. Teacher training courses	<input type="checkbox"/>	<input type="checkbox"/>
10.2 Refresher courses	<input type="checkbox"/>	<input type="checkbox"/>
10.3. Availability of the copy of the national curriculum	<input type="checkbox"/>	<input type="checkbox"/>
10.4. Audio visual aids	<input type="checkbox"/>	<input type="checkbox"/>
10.5. Internet and library resources	<input type="checkbox"/>	<input type="checkbox"/>

**11. Tick the relevant box to show the degree of difficulty of coping with the following issues concerning the implementation of strategies for the ESD content in your class rooms.( 1=very difficult, 2=difficult, 3=moderately difficult, 4=not difficult, not at all difficult)**

No.	It is hard to adopt the different strategies for teaching because:	1	2	3	4	5
11.1	There is not enough time to prepare yourself to teach the ESD					
11.2	Students are not ready to learn the concepts of SD by different activities					
11.3	It is hard to change the students from old practice of learning.					
11.4	The class size is big					
11.5	To introduce such concepts during teaching are above the level of the students					
11.6	There is less time to cover the syllabus					
11.7	Lack of teaching materials					
11.8	Lack of funding to provide the required resources					
11.9	There is exam pressure on the students					

11.10. Any other please specify:

**12. Tick the relevant box to indicate the degree of importance of the following suggestion in improving teaching for the concepts related to the ESD.**  
**1=important, 2 Undecided, 3=Unimportant, 4= not very important**

No	Suggestion for improvement	1	2	3	4
12.1	Training for teachers to teach such concepts effectively.				
12.2	Involvement of teachers in designing the curriculum.				
12.3	There must be less examination stress.				
12.4	Provision of required teaching material.				
12.5	Provision of facilities(AV aids, Internet, libraries, funds).				
12.6	Improvement in working conditions of the teachers.				
12.7	There must be some changes in the curriculum.				



12.8. Any other please specify:

## Appendix 8



University of Glasgow | College of Social Sciences

استاد کے لئے سوالات  
یہ حصہ آپ اور آپ کے تعلیمی تجربے کے بارے میں ہے

جنس : ☐ مرد ☐ عورت

آپ کی تعلیم کیا ہے؟

آپ کا ادارہ : ☐ سرکاری ☐ نجی

آپ نے کتنے سال بچپن کی ہے؟

آپ کون سے مضامین پڑھاتے ہیں؟

آپ کے سکول میں کس زبان کی تعلیم دی جاتی ہے؟

آپ کو کونسا نصاب پسند ہے؟

آپ کو کونسا نصاب پسند ہے؟

یہ حصہ آپ کی تعلیم پرانے پائیدار ترقی (Sustainable Development Education) کی سمجھ بوجھ کے بارے میں ہے۔

2.1 کیا آپ ماحولیاتی تعلیم کے بارے میں جانتے/جاتی ہیں؟ ☐ ہاں ☐ نہیں

2.2 کیا آپ تعلیم پرانے پائیدار ترقی کے بارے میں جانتے ہیں؟ ☐ ہاں ☐ نہیں

تعلیم پرانے پائیدار ترقی ایک ایسا خیال ہے کہ موجودہ جن میں ماحول، معاشرہ اور معیشت کو تعلیم میں شامل کیا جاتا ہے۔ موجودہ زندگی کی بہتری کے لئے۔

یہ ایک ایسی ترقی ہے جو کہ حال کی ضرورتوں کو پورا کرے مستقبل کی ضرورتوں پر اثر انداز ہوئے بغیر۔

آپ کی رائے کے مطابق تعلیم پرانے پائیدار ترقی کا کیا مطلب ہے؟

3.1 ماحولیاتی مسئلے سے متعلق تعلیم

3.2 معاشی اور سماجی اقدام کو محفوظ کرنے کے لئے تعلیم

3.3 حب الوطنی کے لئے تعلیم

3.4 یہ تمام

3.5 کوئی نہیں

3.6 اگر ان میں سے کوئی بھی جی ہے، تو وضاحت کریں؟

کیا تعلیم پرانے پائیدار ترقی کا تصور آپ کے نصاب میں ہے؟ اگر ہاں تو کون سے مضامین میں؟

تعلیم پرانے پائیدار ترقی کی کون سی صورت بہتر ہے:

جیمز	کامل رضا مندی	کچھ نہیں	غیر رضا مندی	کامل غیر رضا مندی
5.1	ماحول کی حفاظت کے بارے میں تعلیم			
5.2	معاشی ترقی کے لئے تعلیم			
5.3	سماجی اقدام کی ترقی کے لئے تعلیم			
5.4	بہمی شراکتی اقدام کے بارے میں جاننے کی تعلیم			

6- آپ کے خیال میں مندرجہ ذیل میں سے کیا مناسب ہے؟ جس کی مدد سے تعلیم پرانے پائیدار ترقی کو نصاب کو متعارف کروایا جاسکتا ہے۔

جیمز	پائیدار ترقی کی تعلیم دی جاسکتی ہے کہ ذریعہ:	مناسب	غیر مناسب	نامناسب
6.1	ایک خاص مضمون پائیدار ترقی کی تعلیم کا			
6.2	مطالعہ، تاریخ اور جغرافیہ			
6.3	سائنسی مضامین			
6.4	غیر نصابی سرگرمیاں			
6.5	نصاب کے ہر حصے میں			

## استاد کے لئے سوالات

### یہ حصہ آپ اور آپ کے تعلیمی تجربے کے بارے میں ہے

جنس: ☐ مرد ☐ عورت

آپ کی تعلیم کیا ہے؟

آپ کا ادارہ: ☐ سرکاری ☐ نجی

آپ نے کتنے سال ٹیچنگ کی ہے؟

آپ کون سے مضامین پڑھتے ہیں؟

آپ کے سکول میں کس زبان کی تعلیم دی جاتی ہے؟ ☐ انگریزی ☐ اردو  
آپ کون سے نصاب کے مطابق پڑھاتے ہیں؟ ☐ گورنمنٹ نصاب ☐ پاکٹی اور نصاب

یہ حصہ آپ کی تعلیم برائے پائیدار ترقی (Sustainable Development Education) کی سمجھ بوجھ کے بارے میں ہے۔

2.1 کیا آپ ماحولیاتی تعلیم کے بارے میں جاننے/جانتی ہیں؟ ☐ ہاں ☐ نہیں

2.2 کیا آپ تعلیم برائے پائیدار ترقی کے بارے میں جانتے ہیں؟ ☐ ہاں ☐ نہیں

تعلیم برائے پائیدار ترقی ایک ایسا خیال ہے کہ موجودہ جنس میں ماحول، معاشرہ اور معیشت کو تعلیم میں مثال کا جاتا ہے۔ موجودہ زندگی کی بہتری کے لئے۔

یہ ایک ایسی ترقی ہے جو کہ حال کی ضرورتوں کو پورا کرے مستقبل کی ضرورتوں پر اثر انداز ہوئے بغیر۔

آپ کی رائے کے مطابق تعلیم برائے پائیدار ترقی کا کیا مطلب ہے؟

3.1 ماحولیاتی مسئلہ کے متعلق تعلیم ☐

3.2 معاشی اور سماجی اقدار کو محفوظ کرنے کے لئے تعلیم ☐

3.3 حب الوطنی کے لئے تعلیم ☐

3.4 یہ تمام ☐

3.5 کوئی نہیں ☐

3.6 اگر ان میں سے کوئی بھی نہیں ہے، تو وضاحت کریں؟

کیا تعلیم برائے پائیدار ترقی کا تصور آپ کے نصاب میں ہے؟ اگر ہاں تو کون سے مضامین میں؟

تعلیم برائے پائیدار ترقی کی کون سی صورت بہتر ہے:

نمبر	مکمل رضامندی	رضامندی	پتہ نہیں	غیر رضامندی	مکمل غیر رضامندی
5.1					ماحول کی حفاظت کے بارے میں تعلیم
5.2					معاشی ترقی کے لئے تعلیم
5.3					سماجی اقدار کی ترقی کے لئے تعلیم
5.4					باہمی شراکتی اقدار کے بارے میں جاننے کی تعلیم

6- آپ کے خیال میں مندرجہ ذیل میں سے کیا مناسب ہے؟ جس کی مدد سے تعلیم برائے پائیدار ترقی کو نصاب کو متعارف کروایا جاسکتا ہے۔

نمبر	پائیدار ترقی کی تعلیم دی جاسکتی ہے کہ ذیل:	مناسب	نہیں معلوم	نامناسب
6.1	ایک خاص مضمون پائیدار ترقی کی تعلیم کا			
6.2	مطالعہ، تاریخ اور جغرافیہ			
6.3	سائنسی مضامین			
6.4	غیر نصابی سرگرمیاں			
6.5	نصاب کے ہر حصے میں			

7. پائیدار ترقی کی تعلیم کے مقاصد کے بارے میں آج کیا رائے ہے؟

جیسر	پائیدار ترقی کی تعلیم میں طلباء کی تعلیم دی جانی چاہیے:	مکمل رضامندی	غیر رضامندی	کھلی غیر رضامندی
7.1	معاشی اور سماجی سرگرمیوں کے بارے میں علم			
7.2	تنقیدی سوچ اور مسائل کے حل کے لئے ہنر			
7.3	معاشرتی سرگرمیوں میں حصہ لینے کے مواقع			
7.4	ماحول کی قومی اور عالمی سطح پر حفاظت			
7.5	صحیح و درجہ کی تشریف			
7.6	کام، پیداوار، بچت اور خرچ کے بارے میں مثبت رویہ			

8 قومی نصابی (National Curriculum) میں پائیدار ترقی کی تعلیم کے متعلق عنوانات کو پڑھانے کے لئے بہت سی تعلیمی حکمت عملیوں کے لئے رہنمائی کی گئی ہے۔ دائیں کالم میں نشان لگائیں اگر آپ ان حکمت عملیوں پر عمل کرتے ہیں اور بائیں کالم میں نشان لگائیں اس حکمت عملی کی اہمیت کے مطابق

ان طریقوں پر نشان لگائیں ہاں آپ کو رعایت میں مل گئے ہیں	پائیدار ترقی کی تعلیم کے نصاب کے لئے طریقہ تدریس	ضروری	غیر ضروری	نہ فیصلہ کیا ہوا
8.1	طلباء پر ایسے پراجیکٹ پر کام کرتے ہیں جن میں صرف سکول سے باہر معلومات استعمال کی جاتی ہیں			
8.2	طلباء نصابی کتاب میں پڑھتے ہیں			
8.3	طلباء مختلف معلومات اور حقائق کو دیکھ کر ان میں کام کرتے ہیں اور انہیں پیش کرتے ہیں			
8.4				
8.5	طلباء کی حوصلہ افزائی کے لئے ان کی آخری کوشش جس میں حکمت کی پالیسیوں کی وضاحت کریں یا تشریح کرتے ہیں			
8.6	طلباء اپنے علاقے میں سرگرمیوں اور تہواروں میں حصہ لیتے ہیں			
8.7	ایسی سرگرمیوں کی حوصلہ افزائی کی جاتی ہے جس میں طلباء تنقیدی سوچ کا مظاہرہ کرتے ہیں			
8.8	استاد کچھ دیتے ہیں اور طلباء اسے لکھتے ہیں			
8.9	کرومات میں مختلف تفسیر طلب امور پر بحث کی جاتی ہے			
8.10	پڑھانے کے لئے			
8.11	طلباء میں تنقیدی سوچ پیدا کر کے مختلف کاموں سے			
8.12	اپنے علاقے میں لوگوں کی خدمت دینا کہہ طلباء سے بات چیت کرتے ہیں			
8.13	معلومات حاصل کرنے کے لئے اور ان کے دوسرے طلباء کے تعلق کے لئے اعزہ متبادل کرتے ہیں			
8.14	طلباء کو استحقاقات کی تیاری کے لئے زیادہ سے زیادہ نصابی کتابیں پڑھانی جاتی ہیں			

9۔ اگرمندرجہ ذیل حکمت عملیاں آپ کے ادارے میں اپنائی جاتی ہیں اور بائیں طرف کالم میں نشان لگائیں اور دائیں کالم میں ترجیح کی بنیاد پر نشان پر لگائیں۔  
1 سب سے زیادہ صحیح کے لئے ہے۔

آپ کے ادارہ کی اپنائی گئی حکمت عملی	5	4	3	2	1
پائیدار ترقی کی تعلیم کی آگاہی کو بڑھانے کے لئے تدریسی مواد پر اور تدریس پر رہنمائی					
اساتذہ کے لئے ورکشاپیں اور کورسز کروائے جاتے ہیں۔ SDE سے متعلقہ سرگرمیوں کے لیے تیار ہوں					
مختلف دن متائے جاتے ہیں۔ SDE سے متعلقہ جیسا کہ زنجی دن، روایات کا دن، مزدوروں کا دن					
SDE سے متعلق طلباء کی آگاہی بڑھانا					
کوئی اور جو آپ بتانا چاہیں					

## 10۔ نشان لگائیں اگر مندرجہ ذیل سہولیات آپ کا سکول SDE سے متعلقہ نصاب کو پڑھانے کے لیے فراہم کرتا ہے

ہاں      نہیں

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اساتذہ کے تربیتی کورسز

ریفریشر کورسز

قومی نصاب کی کاپی کی فراہمی

سمعی بصری معاونات

انٹرنیٹ اور لائبریری کے ذرائع

مندرجہ ذیل میں SDE سے متعلقہ حکمت عملیوں کو کمرہ جماعت میں رائج کرنے کے حوالے سے کچھ مسائل کا ذکر ہے

زیادہ مشکل کے اعتبار سے متعلقہ خانے میں نشان لگائیں      بہت زیادہ مشکل      مشکل      درمیانہ      مشکل نہیں      بالکل مشکل نہیں

11.1	تدریس کے لیے مختلف حکمت عملیوں کو اپنانا مشکل ہے۔ کیونکہ؟				
11.2	آپ کے پاس SDE کو پڑھانے کے لیے خود کو تیار کرنا مشکل ہے				
11.3	طلباء SDE سے متعلق نصاب کے لیے مختلف سرگرمیوں کو سیکھنے کے لیے تیار نہیں				
11.4	طلباء کو پڑھانے طریقوں سے سیکھنے کی عادت کو بدلنا مشکل ہے				
11.5	جماعت میں بچے زیادہ ہیں				
11.6	SDE سے متعلقہ نصاب کو پڑھانا طلباء کے ذہنی معیار سے بلند ہے				
11.7	نصاب کو پڑھانے کے لیے وقت کم ہے				
11.8	تدریسی مواد کی کمی متعلقہ وسائل کی فراہمی کے لیے فزیکل کم ہیں				
11.9	طلباء پر امتحانات کا دباؤ ہے				
11.10	یا کوئی خاص وجہ				

## 12۔ مندرجہ ذیل میں کچھ سفارشات دی گئی ہیں جب کی مدد سے SDF سے متعلقہ نصاب کو پڑھانے کے لئے تدریس میں بہتری لائی جاسکتی ہے۔ اہمیت کے اعتبار سے نشان لگائیں

اہم	نہیں معلوم	غیر اہم	بالکل نہیں اہم	
				12.1 بہتری کے لئے سفارشات
				12.2 اساتذہ کی ٹریننگ کروائی جانی چاہیے تاکہ وہ اپنا نصاب بہتر طریقے سے پڑھاسکیں
				12.3 نصاب کو بنانے میں اساتذہ سے مدد لی جائے
				12.4 امتحانات کا دباؤ کم ہو چاہیے
				12.5 مطلوبہ تدریسی مواد مہیا ہونا چاہیے
				12.6 سمعی، بصری معاونات، انٹرنیٹ، لائبریریاں مندرجہ بہترین میسر ہونی چاہیے
				12.7 اساتذہ کے کام میں کرنے کے حالات بہتر بنایا جائے
				نصاب میں کچھ تبدیلیاں لانی چاہیں